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## 13. ABSTRACT (Maximum 200 words)

This paper discusses the feasibility of instituting a Varicose Vein Treatment Center at Columbia Hospital for Women Medical Center (CHWMC). It includes a brief description of the workload and financial trends experienced by CHWMC from Fiscal Years 1991 to 1995 to explain why this particular service was considered. Health Care Administration literature was reviewed to determine the options available to hospitals to increase revenues and financial performance. The reasoning behind choosing a sclerotherapy clinic was discussed. The bulk of the paper discusses the assumptions made in creating this proposal. The Varicose Vein Center's feasibility was considered in light of logistic concerns at CHWMC (to include staffing issues), competition in the area, pricing, third party payor considerations, market analysis and advertising and also presents Pro Forma financial plans for the proposed clinic. Given the findings from the above analysis, it was determined that the Varicose Vein Center would be a relatively low risk, very profitable venture for CHWMC to initiate.

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**U.S. Army-Baylor University Program in Health Care Administration**

**Business Plan for a Varicose Vein Center, Columbia Hospital for  
Women Medical Center**

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Management Department, provided me with the workload reports which enabled me to prepare the "Conditions Which Prompted the Study" section of this paper. Ms. Susan Fagenbaum, Human Resources Department, provided me the labor cost estimates for each category of worker in the proposed clinic. Last, but certainly not least, I would like to thank my husband, Bob Peiser, for his insights and thoughtful review of several drafts of this paper.

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## ABSTRACT

This paper discusses the feasibility of instituting a Varicose Vein Treatment Center at Columbia Hospital for Women Medical Center (CHWMC). It includes a brief description of the workload and financial trends experienced by CHWMC from Fiscal Years 1991 to 1995 to explain why this particular service was considered. Health Care Administration literature was reviewed to determine the options available to hospitals to increase revenues and financial performance. The reasoning behind choosing a sclerotherapy clinic was discussed. The bulk of the paper discusses the assumptions made in creating this proposal. The Varicose Vein Center's feasibility was considered in light of logistic concerns at CHWMC (to include staffing issues), competition in the area, pricing, third party payor considerations, market analysis and advertising and also presents Pro Forma financial plans for the proposed clinic. Given the findings from the above analysis, it was determined that the Varicose Vein Center would be a relatively low risk, very profitable venture for CHWMC to initiate.

To my husband, Bob, a man whose strength, support and understanding made this work possible.

# CHAPTER 1

## INTRODUCTION

The 1990's have proven to be a challenge for many hospitals in the United States.

Diminishing reimbursements, reduced lengths of stay and increased administrative responsibilities plague many health care organizations (Coile 1995). Columbia Hospital for Women Medical Center (CHWMC) in Washington, D.C. is one of many medical treatment facilities experiencing these challenges. CHWMC is a specialty hospital that principally provides services to women and infants in the greater Washington, D.C. Metropolitan Area. Although licensed for 149 adult and 87 infant beds, the hospital is staffed to operate 75 adult and 59 infant beds (CHWMC 1995d). As a result of changes in local demographics and in the marketplace, CHWMC's mission as a specialty hospital for maternity and infant services is outdated. CHWMC must find new methods and services to increase revenues and maintain the viability of the institution.

The Columbia Hospital for Women and Lying-In Asylum was founded in March 1866 and received a Congressional charter on June 1, 1866 (CHWMC 1986). Its mission was to care for the large number of women who migrated to Washington, D.C. area after the Civil War. The Congressional charter stated that the purpose of Columbia was: "To found (sic) in the City of Washington a hospital and dispensary for the treatment of diseases peculiar to women, and lying-in asylum (CHWMC 1986)." The original mission of CHWMC has not changed: inpatient

services are only provided to women and infants. Men may receive outpatient medical services in infertility, urology and ambulatory care surgery.

CHWMC provides inpatient and outpatient treatment in a specialized range of medical services to their served population. Services include: obstetrics, gynecology, Assisted Reproductive Technologies (including in vitro fertilization (IVF), Gamete Intra fallopian Transfer (GIFT), Zygote Intra fallopian Transfer (ZIFT)), micromanipulation procedures (Intracytoplasmic Sperm Injection (ICSI)), reproductive endocrinology, urology, general surgery, radiology, laboratory, pharmacy services, a neonatal intensive care unit, a high risk pregnancy unit, plastic surgery, oncology and normal newborn care. More than 83 percent of all admissions from Fiscal Years (FY) 1991 through 1995 were related to maternity and infant care.

In the early 1980's the Columbia Hospital for Women Governing Board set up a foundation to protect the assets of the hospital from being lost as a result of a lawsuit. As a result, a new corporation, entitled the Columbia Hospital for Women Foundation (CHWF) was formed. This corporation included four separate entities: the Columbia Hospital for Women Medical Center ("the hospital"), the Columbia Hospital for Women Services Corporation (responsible for managing the attached medical Professional Office Building (POB)), the National Women's Health Resource Center (a center designed to provide education to women concerning women's health issues and to hold local and national symposia on topics of relevance to women) and the Columbia Hospital for Women Foundation itself. The finances of each of these entities are intertwined. As a result, the financial status of each has an impact on the overall CHW Foundation.

## **Conditions Which Prompted the Study**

The 1990's brought turbulent change to the health care marketplace in the Washington, D.C. area. The popularity of managed care health insurance policies grew exponentially in the early 1990's (District of Columbia Hospital Association (DCHA) 1995a). These health insurance policies cut overall health services costs by regulating the utilization of health services and by obtaining discounts for services from health care providers (Kongstvedt 1995). These types of policies accounted for an increasing proportion of revenue for most area-wide hospitals (DCHA 1995a). In addition, the general population is migrating out of the District of Columbia to nearby cities in suburban Virginia and Maryland (Cohn and Casey 1996, U.S. Census Bureau 1995). These trends suggest poor future financial performance for most hospitals in the District of Columbia.

From 1990 to 1994, District of Columbia hospitals' percentage of total gross patient revenue from managed care insurance plans increased from six to 19 percent (Table 1) (DCHA 1995a). During the same period, the percentage of total gross patient revenue from indemnity insurance plans decreased from 18 percent to 12 percent (Table 1).

Table 1.--Washington, D.C. Hospitals' Insurance Trends  
Percentage of Total Gross Patient Revenue

Payer Type	1990	1991	1992	1993	1994
Managed Care	6%	13%	14%	17%	19%
Commercial Insurance	18%	15%	15%	13%	12%

Source: District of Columbia Hospital Association, Report on Financial Indicators, Fiscal Year 1994

One tactic employed by managed care insurance plans was to negotiate discounts on the services they purchased for their enrollees. The effect of these discounts was demonstrated by the fact that in 1994, managed care companies paid 19 percent of the gross patient revenues while managed care discharges accounted for 23 percent of the total workload (DCHA 1995a). In contrast, services for indemnity insurance customers comprised 12 percent of the gross patient revenue in the same year; yet accounted for 11 percent of total discharges (DCHA 1995a).

The effects of utilization management programs are reflected in District of Columbia hospitals' utilization statistics from calendar years 1991 through 1995. The total number of admissions for all District of Columbia hospitals decreased by 13.4 percent (Table 2).

Table 2.--Utilization Statistics Calendar Years 1991 Through 1995  
All District of Columbia Hospitals

	CY 91	CY 92	CY 93	CY 94	CY 95	% Change
Admissions	13,718	13,188	12,928	12,692	12,096	-13.4%
Patient Days	96,237	90,480	86,874	81,505	73,270	-31.3%
ALOS	7.02	6.86	6.72	6.42	6.06	-15.8%

Source: District of Columbia Hospital Association Monthly Utilization Survey, December 1991 - 1995

Additionally, patient days and the average length of stay (ALOS) decreased by 31.3 percent and 15.8 percent respectively (DCHA 1991-1995). The DCHA did not collect statistics for outpatient surgical procedures performed during that period. Decreasing utilization of medical services resulted in a diminishing "bottom line" for most medical treatment facilities in the D. C. area. The aggregate operating margin for hospitals in Washington, D.C. decreased from -.31 percent in 1991 to -.49 percent in 1994.

The United States (U.S.) as a whole experienced a decrease in bed days over the past five years (Kenkel 1995). The American Hospital Association (AHA) reported that in the first quarter of 1995, length of stay at Association hospitals decreased by 5.6 percent to an average stay of 5.8 days nationwide (AHA 1995). This continues a decade-long decline in length of stay for hospitals nationwide (AHA 1995). Similarly, according to a study by the American Healthcare Systems Institute, more than one-third of the Nation's 925,000 beds will be considered in excess in the next ten years if these utilization trends of the past decade continue. This could result in the closure of as many as 2,500 hospitals nationwide. One might naturally assume that

most of this decrease in utilization is due to aggressive managed care policies and attendant utilization control strategies (Kenkel 1995).

A comparison of District of Columbia hospitals' financial indicators and those of hospitals nationwide show some striking differences. The total net operating margin for an AHA member for the first quarter of 1994 was 6.3 percent compared to 1.4 percent for the average District of Columbia hospital (AHA 1995). The AHA considers a four percent margin to be the minimum a hospital can sustain and be able to replace equipment and facilities in a timely fashion (AHA 1995). William Cleverly, a noted health care financial writer and director of the Center for Healthcare Industry Performance Studies (CHIP), observes in the February 1994 issue of Healthcare Financial Management that in 1992, "the top 25 percent of U.S. hospitals achieved an operating margin of 6.2 percent, while the lowest 25 percent averaged a -1.6 percent operating margin" (Cleverly 1994).

#### CHWMC Workload and Financial Trends - FY 91 through FY 95

For most services offered, CHWMC provided the same service mix from FY 91 to FY 95 (Figure 1, Appendix 2)(CHWMC 1995a). Obstetrics accounted for the greatest percentage of the CHWMC inpatient days (approximately 40 percent), followed by normal newborns (approximately 25 percent), and gynecology (approximately 13 percent). The only service which increased its relative proportion of services during this period was the Neonatal Intensive Care Unit (NICU). The NICU's proportion of CHWMC's total patient days increased from 11.3 percent in FY 91 to 19.1 percent in FY 95. High risk nursery, general surgery, internal medicine, oncology, urology, plastic surgery and laser surgery accounted for the rest of the patient days.

Similar to the declining trend for all hospital inpatient services in the District of Columbia, CHWMC experienced a decrease in average length of stay (ALOS) from FY 91 to FY 95 (Table 9, Appendix 1) (CHWMC 1995a). Services whose decrease in ALOS was greater than the average drop in ALOS for all health services performed by District of Columbia hospitals included: surgery, internal medicine, oncology, obstetrics, normal newborns, gynecology and plastic surgery. Most dramatic were the shifts in surgery (89.4 percent decrease) and internal medicine (89.1 percent decrease). However, CHWMC was hit hardest by the reductions in obstetrics (30 percent) and normal newborns (25.3 percent).

As might be expected, total patient days decreased substantially (CHWMC 1995a). For all medical services combined, CHWMC saw a 50 percent decrease in total patient days from FY 91 to FY 95 (Table 10, Appendix 1). Decreases were greatest in oncology (449.4 percent), high risk nursery (118.7 percent), gynecology (76.6 percent), internal medicine (70.3 percent), urology (66.9 percent), normal newborns (72.6 percent) and obstetrics (61.4 percent). Patient days decreased for all services except pediatrics and the NICU which saw increases in patient days (86.1 percent and 7.7 percent respectively).

Discharges also decreased from FY 91 to FY 95 (Table 11, Appendix 1) (CHWMC 1995a). The decrease in discharges for the NICU and the high risk nursery may have reflected a change in discharge procedures more than a decrease in patient load. Simultaneously, patient load dropped significantly for gynecology (36.7 percent), urology (38.3 percent), plastic surgery (33.3 percent) and obstetrics (24.3 percent) (CHWMC b). However, increases in discharges occurred in general surgery (20 percent), internal medicine (10 percent) and pediatrics (60 percent). Total discharges decreased by 22.7 percent.

To hold back decreasing admissions for surgical procedures, CHWMC included an outpatient surgical suite to the new addition added to the building in FY 90. This approach had mixed results. The number of urology and plastic surgery outpatient procedures increased by 250.8 percent and 120 percent respectively from FY 91 to FY 95 (CHWMC 1995b). Outpatient procedures for all other services declined during that same period (Table 12, Appendix 1). The most stunning blow noted was the decrease in gynecological procedures performed (25 percent), which was especially damaging to the hospital because of the significant declining admissions rate occurring simultaneously. General surgery appeared to be holding steady with a reduction of only five percent. Total outpatient surgical procedures decreased by 23.4 percent. One reason that gynecological procedures might have decreased was that many gynecologists were choosing to perform simple procedures such as dilation and curettage in their own offices. The increase in urological procedures was probably related to CHWMC purchasing a urological practice in FY92.

The declining trends for all types of workload performed by CHWMC is graphically depicted in Figure 2. The sharp decline in total patient days did not start until FY 92, but decreased rapidly for all types of services from FY 92 to FY 95. The data suggests that this trend has not yet leveled out, and that decreasing workload should be expected for at least the next fiscal year.

#### Financial Status

The financial status of the Columbia Hospital for Women Foundation (CHWF) is rapidly declining. Fortunately, the CHWF successfully maintained a residual of revenues over expenses through FY 94 (Table 13, Appendix 1) (Anderson 1991, 1992, 1993, 1994, 1995). This

performance reversed course in FY 95 when the CHWF showed a loss of \$3.975M (Anderson 1995). Some of this loss (\$1.5M) resulted from additional payments into the malpractice insurance fund. The CHWF established this voluntary fund to cover malpractice claims against the medical center up to losses of \$5M.

In the late 1980s, CHWF diversified into a few non-patient related operations including the building and operation of the Professional Office Building (POB) which rents medical office spaces. The POB has a large public parking garage, operated by Kenny Systems, Inc., a professional parking lot management company that has a contract with the Foundation. Both operations brought in significant revenue to the CHWF from FY 91 through FY 95. However, rental income from the POB decreased by 26 percent or \$761,000 in FY 95 (Table 13, Appendix 1).

Table 14 (Appendix 1) was used to calculate four common financial ratios used to further examine the financial posture of the CHWF. CHWF's liquidity was examined using the *current ratio* (Table 3). The current ratio for CHWF dropped from 2.25 to 2.05, indicating that CHWF's liquidity has declined over the past five years. However, a current ratio of 2.05 is still within the covenants required by Mitsubishi Bank, Limited. Mitsubishi Bank issued CHWF an irrevocable letter of credit to secure the interest and principal payments on \$25,000,000 Hospital Revenue Bonds which the District of Columbia issued in 1988. Robert McLean states in his book, Financial Management of Health Care Organizations: Not-For-Profit and Investor Owned, that the average hospital in the United States in 1990 had a current ratio of 1.988 (McLean 1994). However, CHWF's downward trend in liquidity is not good. William Cleverly wrote in a February 1994 article in Healthcare Financial Management that both long and short-term liquidity

increased for most U.S. hospitals from 1990 to 1992 (Cleverly 1994).

Table 3.--CHWMC Current Ratios, FY 91 - FY 95

	FY 91	F Y 92	F Y 93	FY 94	F Y 95
Current Assets	\$27,562	\$29,656	\$28,562	\$29,804	\$25,745
Current Liabilities	12,231	12,562	12,400	13,956	12,523
Current Ratio	2.25	2.35	2.30	2.136	2.06

Source: Arthur Anderson and Co. CHWMC Auditors Reports FY 91-95

The *return on equity* ratio measures financial leverage and flexibility. In a presentation to members of the American College of Health Care Executives in 1996, William Cleverly, stated that the average return on equity for 3,000 hospitals in the CHIP database was 9.4 percent annually from calendar years 1990 to 1994. CHWF's return on equity dropped from 6.1 percent in FY 91 to -8.5 percent in FY 95 (Table 4), well below the CHIP average (Cleverly 1996).

Table 4.--CHWMC Return on Equity, FY 91 - FY 95  
in Thousands (\$000)

	FY 91	FY 92	FY 93	FY 94	FY 95
Net Income	2,751	1,982	1,349	2,301	(3,975)
Equity	45,003	46,385	47,878	50,198	46,502
Return on Equity	6.1%	4.3	2.8	4.6	-8.5

Source: Arthur Anderson and Co. CHWMC Auditors Reports FY 91-95

Another ratio used to determine financial leverage is the *times interest earned* ratio.

This ratio measures the ability of an organization to pay its long term debts (McLean 1994). It is determined by adding Net Income and Interest Expense and dividing that sum by Interest Expense (McLean 1994). CHWF had a times interest earned ratio of 1.871 in FY 91, 1.6 in FY 92 and - 0.395 in FY 95 (Table 5). According to McLean, most lenders look for a times interest earned ratio of 3.0 (McLean 1994). Cleverly reports that the 25 percent of U.S. hospitals with the highest financial performance in 1992 had a ratio of 4.5, while the lowest 25 percent had a ratio of 1.5 (Cleverly 1994). These comparisons show that CHWFs financial leverage was low.

Table 5.--CHWMC Times Interest Earned, FY 91 - FY 95  
in Thousands (\$000)

	FY 91	FY 92	FY 93	FY 94	FY 95
Net Income	2,751	1,982	1,349	2,301	(3,975)
Interest Expense	3,160	3,285	2,838	2,902	2,849
Times Interest Earned	1.871	1.603	1.475	1.793	-.395

Source: Arthur Anderson and Co. CHWMC Auditors Reports FY 91-95

Another performance measure that is commonly used to measure productivity is the *total asset turnover* ratio. McLean states that the total asset turnover of the typical U.S. hospital is 1.00. CHWF had a total asset turnover of 0.668 in FY 91 and 0.632 in FY 95, well below the typical U.S. hospital (Table 6). This would suggest that CHWF's assets could be used more efficiently to generate revenue.

Table 6.--CHWMC Total Asset Turnover, FY 91- FY 95  
in Thousands (\$000)

	FY 91	FY 92	FY 93	FY 94	FY 95
Net Patient Revenues	63,712	70,914	69,218	68,888	59,304
Non-Operating Revenue	6,276	5,814	4,931	6,148	6,167
Total Assets	104,721	105,410	105,230	108,756	103,662
Total Asset Turnover	0.668	0.728	0.705	0.690	0.632

Source: Arthur Anderson and Co. CHWMC Auditors Reports FY 91-95

The most commonly used ratio in assessing financial performance is operating margin.

The operating margin is determined by dividing net income by the sum of net patient revenues and other income (McLean 1994). CHWF's operating margin was 3.9 percent in FY 91, 2.6 percent FY 92, 3.1 percent in FY 94 and -0.61 percent in FY 95 (Table 7). This ratio is lower than the aggregate of all District of Columbia hospitals' operating margins of -.49 percent in FY 94. In 1992, the highest performing hospitals in the CHIP database had an operating margin of 6.2, while the lowest performing hospitals had an operating margin of -1.6 (Cleverly 1994). Hospitals nationwide had an operating margin of 2.9 in 1992 (Cleverly 1994). CHWF's downward trend in operating margin is alarming, since it appears CHWF's financial position is steadily deteriorating

from a moderately successful operation in FY 91 to a poorly performing one in FY 95.

Table 7.--CHWMC Operating Margin, FY 91 - FY 95  
in Thousands (\$000)

	FY 91	FY 92	FY 93	FY 94	FY 95
Net Income	2,751	1,982	1,349	2,301	(3,975)
Net Patient Revenue	63,712	70,914	69,218	68,888	59,304
Other Income	6,276	5,814	4,931	6,146	6,167
Operating Margin	3.9%	2.6%	1.8%	3.1 %	-6.1%

Source: Arthur Anderson and Co. CHWMC Auditors Reports FY 91-95

The downward trends experienced by CHWMC were the result of many factors. The primary factor appears to be a reduction in overall utilization of inpatient services spurred by the increasing proportion of revenue obtained through managed care insurance plans (Table 8). From FY 91 to FY 95, the percentage of gross patient revenues from managed care insurance plans increased from 17 to 37.8 percent (Arthur Anderson 1991, 1992, 1993, 1994, 1995). There is a correlation between the decreasing utilization trends and the increasing percentage of revenues from managed care. This relationship is illustrated in Figure 3.

Table 8.--CHWMC Managed Care Revenues as a Percentage of Total Revenues

Fiscal Year	Percent Managed Care Revenues
91	17.0
92	28.0
93	42.0
94	43.0
95	39.9

Source: Arthur Anderson and Co. CHWMC Auditors Reports FY 91-95

CHWMC received roughly twice the amount of gross patient revenues from managed care insurance plans than did the average District of Columbia hospital. In a 1995 survey of the CHWMC medical staff, inability to admit patients due to insurance regulations was the primary reason physicians did not admit patients to CHWMC (CHWMC 1994). These same pressures on physicians in the District of Columbia as a whole are also evident by the dramatic decrease in rental income from the POB in FY 95 (Table 13, Appendix 1).

#### Market Share

CHWMC's workload in maternity and infant services as a percentage of total maternity and infant services performed by Washington, D.C. hospitals is smaller than would be expected of a specialty hospital. This information was obtained using DCHA's Patient Data System and adding data obtained through CHWMC reports. CHWMC provided services for six of the 15 highest volume Diagnostic Related Groups (DRGs) provided by District of Columbia hospitals

(CHWMC 1995c; DCHA 1996). CHWMC provided 38.69 percent of all normal vaginal deliveries for hospitals in Washington, D.C. (Table 15, Appendix 1). This was also the highest DRG for CHWMC (Table 16, Appendix 1). CHWMC provided 31.8 percent of all of the Cesarean Sections (DRG 371) in the District of Columbia, the 10th highest DRG for D.C. hospitals. This was the fourth highest DRG for CHWMC (Table 15, Appendix 1). Treatment for full term neonates with major problems (DRG 390) was the 15th highest DRG for the District. CHWMC cared for 18.1 percent of all District of Columbia discharges. It was the 18th highest volume DRG for CHWMC. Surprisingly, CHWMC provided 1.64 percent of chemotherapy treatments for conditions without leukemia as a secondary diagnosis (DRG 410) for District hospitals. DRG 410 (chemotherapy) was the 32nd most frequent DRG for CHWMC. DRG 390 (neonates with other significant problems) is the 5th highest DRG for all patients in the District of Columbia, with CHWMC providing 38.5 percent of the services. This may be a coding error, however, because the discharge percentage of service for the high risk nursery using CHWMC's Inpatient Administrative Summary Report was only about 2.7 percent of total discharges. CHWMC's DRG Charge Variance Summary Report places discharges for DRG 390 at 13.8 percent of all discharges.

#### Demographics

The next problem facing CHWMC is that the population of the District of Columbia is decreasing and secondarily becoming older. Information obtained from the United States Census Bureau indicates that the population of the District of Columbia itself decreased 6.1 percent from April 1, 1990 to July 1, 1994 from 606,900 to 570,175 persons (U.S. Census 1995). According

to 1993 and 1994 Internal Revenue Service statistics, the median adjusted gross income of those families moving out of the District of Columbia was \$4,871 lower than those moving in (Cohn and Casey 1996). Additionally, the population trends for this area suggest that the population is aging. The Washington Post reports that the number of people more than sixty-five years of age in the Washington, D.C. Metropolitan Statistical Area grew 16.5 percent from 1990, while the less than sixty-five year old segment of the population grew by only 4.8 percent (Cohn 1996). Compounding this general trend is the fact that the Northeast region of the country had the lowest birth rate of any region of the country in 1994: The birth rate in the Northeast was 59.3 births per thousand compared with 71.8 births per thousand in the Western region of the United States, which had the highest birth rate in 1994 (U.S. Census 1994). These trends do not bode well for a hospital which provides specialty services in maternity and infant health care.

#### Options Available

Given the downward trends in workload, finances and the unfavorable change in demographics, CHWMC must adopt new strategies to survive. Generally, many hospitals are currently merging with other health care organizations to increase market share, cut administrative overhead and create integrated health care systems (Kenkel 1995; Ginzberg 1995; Coile 1995). CHWMC administration pursued this option in both in the late 1980s and the mid-1990s, but talks disintegrated and no merger was completed. With the retirement of CHWMC's Chief Executive Officer (CEO) of 18 years in April 1995, the CHWF Board of Governors was not able to pursue a merger in 1995. The new CEO began working full-time at CHWMC in September 1995. At a

Board of Governors retreat in September 1995, the Board decided that its first goals were to adopt a new mission statement for the CHWMC and to downsize the Board. The Board approved a new mission statement in October 1995 which stated that the new mission of the organization was to care for women of all ages and their families. This broadened the mission of the hospital to include services for "mature" women (ages 45+) and expand services for men. Work on the restructuring of the Board did not proceed as quickly as anticipated. As of this writing, the Board of Governors still retains the old structure.

Given the current climate within the Board of Governors and the adoption of the new mission statement which allows an expansion of services, the most feasible strategy to follow in the next twelve months is to initiate new low-cost patient services which will appeal to a wide range of ages and income levels.

### **Problem Statement**

Columbia Hospital for Women Medical Center (CHWMC), an obstetrics, neonatology and gynecological specialty hospital in downtown Washington, D.C., experienced a trend of diminishing operating revenues over the past five years. This decline was a result of decreasing average length of stay, admissions and surgical outpatient procedures performed during that period. Due to poor financial ratios, CHWMC must enact a strategy to increase revenues which can be funded with CHWF funds or through a joint partnership, since lenders may not be willing to commit funds to an institution with such a high level of debt.

## Literature Review

Health care literature was reviewed to obtain ideas concerning possible strategies to increase the financial status of CHWMC. As mentioned earlier, much of the health care literature supports the idea that hospitals must merge to survive (Hospitals 1989; Kenkel 1995; Ginzberg 1995; Coile 1995). Paul Kenkel, in a special 1995 supplement to Business and Health magazine, noted that 650 of approximately 6,500 of U.S. hospitals were involved in mergers or acquisitions in 1994 (Kenkel 1995). The conventional wisdom that mergers will ensure hospitals' survival is a strong belief within the health care industry. A 1994 survey of 1,200 acute care hospital executives by Deloitte & Touche, CPAs, New York, found that 81 percent of respondents stated that their hospitals would not be independent entities within five years (Kenkel 1995). These constructs are appropriate for hospitals with sophisticated governing boards and good market share. What future lies ahead for a hospital that is not ready for a merger? What strategies can be employed to remain competitive in the market?

A noted health care futurist, Russell Coile, predicts that price-based competition will characterize the health care market from 1996 to 2000 due to pressures on third-party payers to keep premiums low (Coile 1995). This will be compounded by the increase in demand for managed care insurance plans. In a 1993 study, SMG Marketing Group predicted that Health Maintenance Organization (HMO) enrollment would increase from 39 million in 1992 to 80 million in 2000, a 105 percent increase (Coile 1995). Coile believes this increase in managed care will result in a sharp decline in profitability for hospitals nationwide from 1996 to 2000. He cites American Hospital Association data which shows that hospital profit and operating margins in

2,000 surveyed hospitals dropped from 1993 to 1994. This decline is due to a drop in both admissions and patient days which Coile asserts will continue through the year 2000. In his opinion, this decline in profitability cannot be offset by strategies to increase market share such as merging hospitals or acquiring physician practices, because the overall demand for hospital services is falling (Coile 1995). Coile states that the only strategies that will increase financial performance are: reducing staffing levels to match decreased workload, shifting patients from inpatient to ambulatory settings and closing unneeded programs and facilities (Coile 1995).

Coile's contention that increasing outpatient services leads to greater financial success is supported by research conducted in 1995 by HCIA, a Baltimore-based health care information company and William M. Mercer, a human resources management consulting firm (Morrissey 1995). HCIA tracks Medicare cost and discharge data on 4,000 hospitals nationwide. Each year they release a report on the 100 best performing hospitals in the United States. One of their key findings over the past three years is that best performing hospitals receive a higher percentage of total revenues from outpatient services than do poorly performing hospitals (Morrissey 1995).

Steven Eastaugh performed a study in 1990 to determine which strategies worked best for increasing a hospital's financial performance (Eastaugh 1992). He surveyed 252 CEOs concerning their strategic plans for increasing profitability and correlated that with their hospital's financial performance from 1986 to 1990. He placed the CEOs strategies into five separate groups, modifying a 1978 model used by management professors Miles and Snow. Miles and Snow performed a study to determine the most profitable diversification strategies used by managers. They divided managers who had different strategy preferences (risk takers and non-risk takers) into four different subgroups. These groups included defenders, analyzers,

prospectors and reactors. Eastaugh felt that these subgroups were not adequately descriptive to portray CEOs of health care organizations. He divided the responses from his survey into five categories. The first category was the productivity defender specialist whose major strategy is to improve productivity, improve managerial cost accounting, reduce excess variable costs and achieve cost leadership of specialized quality products. The second group studied was selective analyzer type I whose major strategies were limited diversification in related health services and incentive compensation based upon revenue gains. A third grouping was the analyzer type II. This group used moderate diversification into unrelated (non-health) and related (health) lines of business. The fourth group was the diversifier/prospector whose major strategy was strong diversification into non-health and health related services and who created opportunities in a constant search for new and better investment opportunities. The last group was the reactors. The reactors had no strategy at all and merely reacted to local competition. Eastaugh found that the group with the highest operating margins, total asset turnover, return on equity, and non-operating revenue as a percentage of excess of revenues over expenses was the productivity defender specialist. However, he found that many of these productivity defenders did employ a moderate level of diversification. He found that the relationship between diversification and operating margin is curvi-linear. Eastaugh states, "too much or too little diversification results in a more rapid decline in operating margin. The middle of the road strategy .. yielded the best results" (Eastaugh 1992).

Clearly, the literature supports hospitals' careful diversification into new products and services. The question is, "which products or services?" Courtney Price, a noted health care writer, interviewed hundreds of health care executives for her book, Health Care Innovation and

Venture Trends. She found that no one type of diversification venture was successful for all health care organizations (Price 1992). However, she stated that health care service ventures as diversification projects should be given priority for five reasons. First, hospitals are service organizations. They know how to perform services adequately, or they would not remain in business. Second, initiating a new service takes less time than a venture to create a new product. Price asserts that a service venture can be started in as little as three months. Whereas, developing a product may take more than two years. Another reason to diversify into health services is that it usually takes less capital, since existing plant, equipment and employees can be used for the new venture. Additionally, an isolated service can be offered instead of an entire product line. A health care service can have an easy exit, since limited resources are placed into start-up costs. Finally, a service is easier to test market, repackage and revise than a product. A new service can be easily marketed to a small market segment with immediate results. If the results are poor, the service can be revised and tested again (Price 1992).

Gary Appel, in Health Care Strategic Management, echos Price's theories with one exception (Appel 1987). In his research, he found that only rehabilitation and physical therapy services were successful for most mid-sized hospitals. He states that wellness programs (weight loss, smoking cessation) for most hospitals were used to increase public relations and generate inpatient referrals. Most wellness programs did not generate any revenue on their own. He suggested that mid-sized hospitals seek opportunities to provide new services directly from employers such as: to provide drug testing for illegal drugs or provide utilization management programs for workers compensation programs (Appel 1987). Eastaugh lists several services that were financially viable for many hospital CEOs surveyed in 1990. These services included:

magnetic resonance imaging, CT scanners, laser systems, fitness centers, birthing centers, geriatric assessment and case management, lithotripsy, open heart surgery, ultrasonic diagnostic systems, in-home infusion therapy, free-standing skilled nursing facilities, neonatal services, megavoltage radiology and organ transplants (Eastaugh 1992). He also lists the services that hospitals divested. They included: urgent care centers, family planning, in-home skilled nursing, hospice, health screening, industrial or executive health services, crisis intervention, durable medical equipment, cobalt therapy, pediatrics, outpatient AIDS care, in-home physical therapy, sports medicine, immunizations, emergency departments and Meals on Wheels (Eastaugh 1992). Price discusses the results of a diversification questionnaire conducted over three years by Hospitals magazine (Hospitals 1989). The results suggested that competition affected the outpatient services market, making it more difficult to break-even or generate a profit. Additionally, they found that industrial medicine, women's medicine and psychiatric treatment programs were usually profitable. The study highlighted the fact that competition was greatest in the areas of substance abuse and satellite urgent care and that "centers of excellence" were a common strategy (Hospitals 1989).

With so many options available, which diversification venture should CHWF pursue? Rufus Harris in a 1991 issue of Health Progress, gives some guidelines concerning the decision to provide a new service (Harris 1991). He states "Each diversification activity has to be justified on its strategic ability to provide hospital and medical staff referrals and on its financial capacity to generate profits. Those which achieve both strategic and financial success are clearly winners." He provides a checklist to determine the viability of a project. It includes consideration of break-even point, competition, control, employee and physician productivity, debt, market area, market

share, mission, payer mix, physician bonding potential, profit potential, quality, rates, specialized management and clinical skills, system referrals and benefits, and volume (Harris 1991). Price expands on the concept, recommending that a written business plan be developed for each proposed venture. This business plan should include information concerning organizational fit, technical feasibility, competition, pricing, financial plans (pro formas) and implementation schedules (Price 1992).

One of the most daunting sections of a business plan is the financial analysis section. Financial plans must be developed with the use of standard guidelines. The Financial Accounting Standards Board requires a minimum of three basic financial statements (McLean 1994). These include: a statement of revenues and expenses, a balance sheet and a statement of cash flows. These financial statements should be created using seven Generally Accepted Accounting Principles (GAAP) (McLean 1994). The first of these principles includes the assumption that the venture is a separate entity and that it is a going concern. Additionally, the assumption is made that Assets equal Liabilities plus the Fund Balance. Other GAAP assumptions include: that money is measured in United States dollars, assets are valued at historical values, only substantive information is included, the recognition of revenues in the period they are earned and expenses are recorded in the same period as their associated revenues (McLean 1994).

McLean also states that financial analysis should also include an overall valuation of the venture (McLean 1994). He states that the method that is best justified by financial theory is the *discounted cash flow* method. In this method, the start-up costs and all future streams of income are added using a discount rate. This discount rate equals the "opportunity cost" of using start-up capital for the venture. The discount rate is generally determined using the *weighted average cost*

*of capital* method (McLean 1994).

Clearly, it can be ascertained from Eastaugh's studies that new ventures contribute favorably to the overall financial performance of many hospitals. Given CHWF's poor financial condition, a new venture should have start-up costs that could be financed internally. As noted by Price, the most economical venture to start is a new health care service which can use existing plant, equipment and personnel. Coile ascertains that hospitals should place emphasis on outpatient services, since the demand for inpatient services will continue to fall. Both Eastaugh's and Hospitals surveys of health care executives found that too much competition had entered the urgent care market and that hospitals were divesting those programs. Imaging equipment, free-standing skilled nursing facilities and organ transplants were profitable ventures for many health care institutions, but they require large amounts of start-up capital and are not feasible for CHWF. Physical therapy and psychiatric programs were successful for many hospitals also, but the CHWMC medical staff has few attending orthopedic surgeons or psychiatrists on staff. However, there is a service which is not mentioned in the literature that the CHWF could institute. Sclerotherapy is an economical outpatient procedure used to close varicose veins. Some of the physicians on the staff of CHWMC have the skill to perform this procedure and wish to implement this type of clinic at CHWMC. Starting this service is feasible because support staff needs no formal education to assist in the procedure. Additionally, CHWMC has space in the Professional Office Building which could accomodate a sclerotherapy clinic. Because extensive literature searches did not reveal any health care publications concerning the management or profitability of a sclerotherapy service, this may indicate that it is a service that hospitals do not offer. Thus, the initiation of such a service could make CHWMC a market leader in

sclerotherapy.

## **Purpose**

The purpose of this study is to develop a business plan which analyses the feasibility of instituting a varicose vein treatment center at Columbia Hospital for Women Medical Center. In this business plan many variables will be considered. First will be a discussion of the services to be offered to include a description of the service, where it will be performed and who will be performing the service. The appropriateness of the service to be offered will be analyzed in relation to CHWMC's overall mission and served population. Additionally, there will be consideration of the size of the potential market in terms of overall population characteristics. Options for the advertisement of this service will also be discussed. Potential competitors in the market will be analyzed in terms of their location, the price they charge and the services they perform. Included will be an analysis of the technology they use. Finally, the financial viability of the project will be measured. This will be accomplished by using pro forma financial statements including a statement of revenues and expenses, a balance sheet and a statement of cash flow. The financial viability of the project will also be assessed by the estimated Net Present Value of the operation over five years.

### **Standards for the Evaluation of the Business Plan**

Since this applied research project covers a subject which is not published in the literature, hypotheses using the scientific method cannot be formulated. However, standards with accompanying parameters can be set to determine the feasibility of initiating the project. There are three major areas in which the proposed clinic will be examined to determine its feasibility.

These areas are: mission, potential market (includes competitors) and finances.

**Mission:**

The Columbia Hospital for Women Medical Center (CHWMC) Varicose Vein Center must fit the mission of CHWMC. This will be determined by comparing the current mission statement with the proposed patient population served by the CHWMC Varicose Vein Center.

**Market:**

The potential population for sclerotherapy patients must be large enough to support the establishment of the CHWMC Varicose Vein Center. This will be measured by census estimates of workers in Washington, D.C. and by residents of suburbs of Washington, D.C. taken by the U.S. Census Bureau. This pool of potential patients must be large enough to support the new venture when considering the number of sclerotherapy providers in the Washington, D.C. commuting area.

**Finances:**

The financial projections for the CHWMC Varicose Vein Center must be favorable. Measures for adequate financial performance include an excess of revenues of expenses over a five year period. Additionally, the proposal will be considered financially feasible if the project yields a positive net present value over five years, based upon cash outlays for start-up costs and the income stream generated by the operation of the Clinic. The discount rate will be set at CHWMC's Weighted Average Cost of Capital (WACC). Finally, the financial projections will include a break-even analysis, which will allow decision-makers to determine if sufficient volume can be generated to support the clinic financially.

# CHAPTER 2

## BUSINESS PLAN FOR A VARICOSE VEIN TREATMENT CENTER

Many businesses both inside and outside the health care industry use business plans to evaluate proposed ventures. Numerous examples of business plan formats can be found in the business literature, but three books provided the most comprehensive guidance. This plan will be based upon formats found in Courtney Price's book, Health Care Innovation and Venture Trends, Develop Your Business Plan by Richard Leza and Jose Placencia and The Business Planning Guide, by David Bangs.

### Background Information

Varicose veins are “dilated tortuous superficial veins that result from defective structure and function of the valves of the saphenous veins (Dyson 1992).” They are classified in two ways: primary varicose veins, which originate in the superficial venous system or secondary varicose veins that result from deep venous insufficiency (Dyson 1992). Varicose veins can cause symptoms ranging from lower extremity pain, edema, aching and burning to recurrent bleeding and ulceration (Marley and Marley 1993; Dyson 1992). Estimates vary widely on the prevalence of varicosities in the general population ranging from seven to 60 percent (Green 1992; Ninja and Goldberg 1995), but most authors place the prevalence of symptomatic varicosities at 20 percent

of the population (Dyson 1992; Isselbacher 1994; Green 1992). Varicose veins are two to five times more prevalent in women than men. The incidence of varicosities increases with age and with pregnancy (Dyson 1992; Isselbacher 1994; Green 1992). Some authors estimate the development of telangiectatic ("spider veins") varicosities to be as much as 70 percent during pregnancy (Green 1992). Trauma, sun damage, obesity, menopause, heavy lifting and prolonged standing are also thought to increase the incidence of varicosities (Green 1992; Ninia and Goldberg 1995). There is also a strong familial predisposition to the condition (Dyson 1992; Isselbacher 1994; Green 1992; Ninia and Goldberg 1995). Although thought to be only a cosmetic concern by many physicians, chronic venous insufficiency may develop in up to 50 percent of patients with significant varicose veins (Green 1992).

Varicose veins are frequently diagnosed by physical examination using the Trendelenburg test and hand-held continuous wave Doppler ultrasound devices (Butie 1995; Dyson 1992; Isselbacher 1994; Green 1992; Ninia and Goldberg 1995). Although physical examination with a hand-held Doppler ultrasound is appropriate to diagnose most superficial veins, a technology called photoplethysmography (PPG) was developed to differentiate superficial from deep vein varicosities. PPG uses a light emitting diode and receiving sensor to measure blood changes. (Weiss and Goldberg 1995). Duplex ultrasound is also used to diagnose deep vein varicosities but it is an expensive technology and is not necessary for the diagnosis of most varicosities (Weiss and Goldberg 1995; Raymond-Martimbeau 1993).

Treatment for varicose veins consists of surgical removal of the incompetent veins or sclerotherapy (Dyson 1992; Isselbacher 1994; Green 1992; Ninia and Goldberg 1995).

### Sclerotherapy and its Origin

Sclerotherapy is defined in Harrison's Principles of Internal Medicine as "an injection/compression technique in which sclerosing solution is injected into a vein emptied of blood, followed by compression of external pressure (Isselbacher 1994)." It is used as an alternative to surgery in the treatment of incompetent veins of the superficial and deep venous systems. David Green in the American Family Physician notes, "Sclerotherapy may be used as an early treatment to prevent the development of larger veins or the extension of varicosities to tributary veins (Green 1992)." One advantage to sclerotherapy is that it is done on an outpatient basis. Patients are encouraged to walk after treatments--in fact, bed rest is contraindicated after injections (Weiss and Goldberg 1995; Green 1992; Ninia and Goldberg 1995).

The concept of closing incompetent veins through the injection of chemicals first originated in the 1800s (Weiss and Goldman 1995). This technique was popular for a few years with physicians of the time. However, after patients developed serious complications due to the use of caustic materials and contaminated needles, the practice was discontinued. The technique resurfaced again in 1900 when the medical community noted that intravenous treatments for syphilis caused sclerosis of venous injection sites (Weiss and Goldman 1995). By 1916, treatment protocols included the use of post-injection compression to limit thrombosis and excessive phlebitic reactions. During the same period, physicians in the United States began successfully using surgical interventions for the treatment of incompetent veins. Due to allergic reactions from sclerosing solutions and difficulty in diagnosing reflux points, general surgeons in the United States abandoned sclerotherapy in favor of surgical techniques which, at the time, resulted in fewer complications (Weiss and Goldman 1995). However, European and Australian physicians

continued to perfect diagnostic techniques and searched for sclerosing solutions which did not cause allergic reactions (Weiss and Goldman 1995).

Today there are many sclerosing solutions available. They can be classified in three general categories: osmotic agents, chemical irritants and detergents. Osmotic agents, such as hypertonic saline, have no reported allergic reactions, but can cause necrosis and are painful to the patient. Chemical irritants, such as polyiodide iodine, are noted in medical literature to have rare allergic reactions, but frequent necrosis and cause moderate pain. Detergents, such as sotradecol (sodium tetradecyl sulfate), cause occasional allergic reactions, occasional necrosis and mild pain. Polidocanol, the only sclerosing solution which has had no recorded allergic reactions, very few reports of necrosis and no pain associated with its administration, is not approved for use by the U.S. Food and Drug Administration. This is despite the fact that Polidocanol has been widely used in Europe and Australia for over twenty years (Weiss and Goldman 1995). Side effects to sclerotherapy include: allergic reaction, pain, and necrosis. Hyperpigmentation also occurs in up to 30 percent of all patients (Green 1992). In most cases, the hyperpigmentation lightens or disappears over several months to years after the procedure. In over 80 percent of all patients, hyperpigmentation disappears within two years (Green 1992). Studies have shown that sclerotherapy treatments are effective for up to five years before recanalization occurs (Weiss and Goldberg 1995).

Sclerotherapy is contraindicated in pregnant and lactating women, because the effect of the sclerant on unborn children and neonates that are breast feeding is not well known. Additionally, sclerotherapy may not be effective in patients with severe secondary varicose veins. Studies show that up to 10 percent of all patients seeking sclerotherapy may require surgical

treatment of their varicose veins (Marley and Marley 1993).

As allergic reactions to sclerosing solutions and necrosis became more infrequent, the use of sclerotherapy expanded in the United States. The treatment has been widely written about in the lay press. Today, patients frequently ask for sclerotherapy treatments instead of surgery to minimize the pain, cost, and recuperation time of treatment (Weiss and Goldberg 1995, Green 1992, Ninia and Goldberg 1995).

### **The Concept**

The idea for this vein center originated when Dr. Mathew Philip, an attending surgeon on the staff of CHWMC, approached Dwaine Gasser, the Vice President for Quality Management and Support Services at CHWMC, about the idea of CHWMC opening a sclerotherapy clinic. Dr. Philip has performed the procedure for many years, and felt this service would be of benefit to the population served by the Hospital. He indicated that if such a clinic could be established, he would be willing to work two days per week. His preference, however, would be to work two afternoons per week.

In searching for a location for the clinic, Mrs. Carmen Coury, Vice President for Ambulatory Care Services at CHWMC, stated that the obstetrics practice owned by CHWMC did not use their spaces on Mondays and Wednesdays. The CHWMC obstetrics practice is located in Room 316 of the POB. Ms. Barbara Kelly, the obstetrics practice coordinator, felt that the current staff could handle answering the additional telephone calls generated by a sclerotherapy clinic.

The concept is to open a sclerotherapy practice on Mondays and Wednesdays in Room 316 of the POB. Dr. Philip should be the first physician who would be offered an opportunity to contract to provide the service. He has indicated a preference to be paid on a per-visit basis and appointments would be grouped together to minimize downtime. If Dr. Philip did not desire to commit to two entire days per week, an agreement could be made with a dermatologist or other physician trained in sclerotherapy to handle the portion of the clinic time that Dr. Philip did not practice. As mentioned earlier, additional reception staff would not have to be hired for the clinic. However, a licensed vocational nurse (LVN) and a part-time billing clerk would have to be dedicated to work in the clinic on Mondays and Wednesdays. To reduce costs, transferring an LVN or RN from a different division within the hospital to assist the physician with the clinic may be possible. In speaking with Nada Marth, director of physician billing services for CHWMC, a part-time billing clerk would have to be hired for that position, since her department is currently understaffed.

Patients would be scheduled for a 45 minute initial appointment, a separate 30 minute sclerotherapy session and a short (five minute) follow-up appointment for each episode of care. Dr. Philip estimates that the majority of patients will require only one treatment session. During the initial appointment, the patient would meet with the billing clerk to determine what type of preauthorization the insurance company requires, or to set up a payment schedule with CHWMC. CHWMC will bill for all services rendered and will compensate the physicians on a per-visit basis. Twenty minutes of that first appointment will be with the physician, who will perform a physical examination. Patients who require documentation in the form of testing to be authorized for insurance payment will be sent to radiology to schedule an appointment for a venous reflux test.

Additionally, patients who have secondary varicose veins will be referred for a venous reflux test to determine if sclerotherapy is an appropriate treatment. If sclerotherapy is appropriate for the patient and when payment methods have been determined, the patient will be scheduled for a treatment appointment. During the treatment appointment, the patient will receive up to six injections. After the treatment, the legs will be wrapped in ace bandages and the patient instructed to wear support hose for three to five days (Marley and Marley 1993). The patient will be instructed to remain active and return for a follow-up appointment in two weeks to review the effectiveness of the treatment (Marley and Marley 1993). Although the literature states that up to 10 percent of all patients who present for sclerotherapy treatments may require surgery for secondary varicose veins, Dr. Philip states that in his experience, only five percent of patients require surgery.

An added benefit to this clinic is that it would increase the number of referrals for surgical treatment of varicose veins significantly. In FY 95, there were only eight procedures performed for DRG 119 (Vein Ligation and Stripping) at CHWMC.

This proposed medical service would fit well with the new mission of the CHWMC. The new mission statement is as follows.

“The Columbia Hospital for Women Medical Center is an integrated network of services, organized to contribute to the maintenance and enhancement of the quality of life for women and their families in the District of Columbia and surrounding communities. Columbia encompasses a system of human and physical resources designed to meet the changing health care needs of the population it serves: preventive, diagnostic, curative and restorative. Columbia extends its definition of health care to include that maintenance and enhancement of health which quickens the spirit and increases the vitality of life. Concern for the total woman is our hallmark.”

Varicose veins mainly affect women, many of whom will no longer be needing maternity

services. The age range for women who have sclerotherapy treatments is from the late twenties and older. However, this service is not only limited to women. A small percentage of men (approximately 5 percent) also suffer from this condition. Sclerotherapy offers an inexpensive treatment for varicose veins which is less invasive and has fewer complications than surgery. It has been successfully performed in Europe and Australia for many decades and there is an abundance of medical literature to support its effectiveness. Referrals for the treatment could easily come from obstetricians, gynecologists and internal medicine physicians on staff at CHWMC.

## Competition

As stated earlier, sclerotherapy is not a service offered by many hospitals. There are currently six competitors that actively seek sclerotherapy patients in the Washington, D.C. commuting area (Table 17). None of these competitors is a hospital. Five of the competitors are physicians with private practices. One of these physicians, practicing under the name "American Vein Clinic," bought out a competitor in 1995. This physician uses the Tysons Corner, Virginia practice as a second location and has recently expanded to nearby Rockville, Maryland and Manassas, Virginia. The sixth, Vein Clinics of America, is a national chain with nine clinics nationwide. They are headquartered in a suburb of Chicago, Illinois and have three locations in the Washington, D.C. Metropolitan Area. These locations are in Bethesda and Owings Mills, Maryland and Vienna, Virginia. Two of the Vein Clinics of America locations were started within the past six months. Only one of these competitors, American Vein Institute, has a downtown

Washington, D.C. location. Unfortunately, they are located only five blocks away from CHWMC on 19th Street, N.W.. On a positive note, discussions with the Administrator of the American Vein Institute indicated that they are open to a joint venture with CHWMC. This might be an option if Dr. Philip chose not to participate in CHWMC's vein center. Three of the private practices are located in nearby Virginia cities (Annandale, Vienna and Fairfax (with a satellite office in Reston). Another is located in Bethesda, Maryland. The practice that will most impact the CHWMC Varicose Vein Clinic is the Washington, D.C. clinic. However, Bethesda and Rockville, Maryland and Annandale, Virginia are close enough to the downtown area of the District of Columbia to impact patient volume also. Other physicians in private practice probably have the skill to perform sclerotherapy, but do not advertise for new patients. Quantifying the number of physicians in that circumstance was not possible. The large competitors, American Vein Institute and Vein Clinics of America, have purchased expensive equipment to compete on a technological level. Although not mandatory for quality purposes, these practices have purchased Duplex Ultrasounds (at a cost of \$40,000) to assist the physician in guiding the needles during injections (Raymond-Martinbeau 1993). These systems can also be used to diagnose incompetent veins. Most practices use an IMEXLAB 9000 series PPG to evaluate vein incompetence. Although these machines will not assist the physician in guiding the needle, they are much less expensive (approximately \$20,000) than a duplex ultrasound. American Vein Institute and Vein Clinics of America have also purchased laser systems to remove telangiectatic veins ("spider veins"). Four practices do not have laser systems. The medical literature concerning the use of laser technology on telangiectasia is not favorable. In a 1987 study using three different types of laser systems, only 50 percent of patients treated had "good" results using the laser (Apfelberg et

al. 1987). The other 50 percent had results that were "fair" or "poor." The biggest drawback to using a laser is that it causes a white scar at the site of the vein, which in some cases looks as bad as the vein.

Most of the Varicose Vein Clinics in the area advertise in the Washington Post several times per month. Both American Vein Institute and Vein Clinics of America advertise in the Washington Post twice per week, usually on Tuesdays in the Post's "Health" section and on Sundays in the "Style" section or Washington Post Magazine. They also have listings and/or advertisements in the Yellow Pages.

## Pricing

As can be seen in Table 17, the pricing of all competitors is within a narrow band for treatment sessions. Most charged from \$0 to \$125 for an initial appointment and charged \$350 to \$360 for a treatment session. These prices should be considered a ceiling that cannot be exceeded or CHWMC's Vein Treatment Center will not be price competitive. An initial price of \$50 per initial session and \$350 per treatment session was chosen to remain competitive, but also allow room for excess revenues over expenses. Dr. Philip mentioned that he often injects a small telangiectatic vein during the initial visit so the patient can experience the sensation that comes with the treatment. This may be considered an added service, since most competitors will bill separately if they perform any treatments during the first visit.

Part of the pricing dilemma concerned the volume of patients that could be seen. The literature says nothing concerning the amount of time necessary to perform sclerotherapy. Dr. Philip estimated that it would take 20 minutes for him to perform a physical examination (an initial

appointment (IA)); approximately 30 minutes to perform a set of injections (a Treatment Appointment (TA)) and five minutes for him to examine most patients during their Follow-up Appointment (FA). With these parameters in mind, a software package, QSB, was used to create a model using linear programming that would estimate the number of patients that could be seen in one month. It was estimated that the patients would be scheduled for 6.5 physician hours per day, two days per week, 52 weeks per year. This equated to approximately 54.16 scheduled hours per month. Each patient seen would have one initial appointment, one treatment appointment and one follow-up appointment. It was assumed that the number of patients with more than one treatment appointment would equal the number of patients who chose not to continue with the treatment after the initial appointment. The object was to maximize the function:

$$Z = 50 \text{ IA} + 350 \text{ TA} + 0 \text{ FA}$$

The following constraints were imposed:

$$.33 \text{ IA} + .5 \text{ TA} + .12 \text{ FA} \leq 56.16$$

$$1 \text{ IA} - 1 \text{ TA} \geq 0$$

$$1 \text{ TA} - 1 \text{ FA} \geq 0$$

After these equations were entered into QSB, the result was that 57 patients per month or 684 patients per year could be seen in the Varicose Vein Treatment Center at 100 percent capacity. Additionally, this clinic should create 84 referrals per year for surgical vein ligation and stripping. These numbers are used as the basis for the statistics budgets (Tables 18 and 19, Appendix 1) and pro forma calculations.

## Market Analysis and Advertising

Philip Kotler, a noted marketing expert, and Roberta N. Clarke, a noted health care expert, wrote in their book, Marketing for Health Care Organizations, that there are three basic questions that must be answered when measuring a marketplace. The first is "Who is the market?" The second is "How large is the current market?" The final question is "What is the likely future of the market?" The answer to the first question can be found in the types of people who need sclerotherapy treatments. The medical literature states that 20 percent of the population has varicose veins which cause symptoms. The ratio of women to men who are suffering from this condition is roughly four to one. The incidence of varicose veins increases with pregnancy, age, obesity, menopause, trauma, sun exposure and prolonged standing. Given these parameters, the market for varicose vein treatments would be people (mainly women) in their late twenties and older. Since sclerotherapy is a non-debilitating treatment, people can receive their treatment and return to work. Thus, CHWMC would want to target women (and to a lesser extent men) who work in Washington, D.C. that are 28 years of age or older. Additionally, CHWMC has a large population of former patients who might receive referrals for this procedure. These former patients live in Washington, D.C. (54.9 percent), Maryland (33.5 percent) and Virginia (8.4 percent) (DCHA 1995). Thus, the market that CHWMC should target would include both former patients and Washington, D.C. workers who are 28 years or older.

The size of the market can be estimated using statistics from the U.S. Department of Transportation and the U.S. Census Bureau. The U.S. Department of Transportation has a software package called the 1990 Census Transportation Planning Package, which contains

information about where people worked and lived in 1990. Tables 20 and 21(Appendix 1) categorize workers in Washington, D.C. by occupational type and by type of organization in which they work. There were a total of 730,448 workers in Washington, D.C. in 1990. Forty-eight percent of the workers were women, and 52 percent of the workers were men. Given that 20 percent of the adult population is prone to varicose veins and that 75 percent of varicose vein sufferers are women, there should be 52,610 women (15 percent) who work in Washington, D.C. that are potential sclerotherapy patients. Using those assumptions, there should be 18,985 men (5 percent) who have varicose veins. This equates to a potential market of 71,596 Washington, D.C. workers who may be potential patients for CHWMC's Varicose Vein Center.

The incomes and medical insurance status of Washington, D.C. workers make this population especially favorable. Forty-five percent of the women who work in Washington, D.C. are in professional or executive/managerial positions. These occupations provide adequate income for women to pay for cosmetic sclerotherapy treatment if required (Table 20, Appendix 1). Additionally, 31 percent of all women who work in the District of Columbia are employed by the Federal government, which has a generous health insurance program (Table 21, Appendix 1). This makes these groups of employees a good target market for sclerotherapy services.

Former patients of CHWMC include residents from both Washington, D.C., Maryland and Virginia (DCHA 1995). A quick perusal of the demographics of the residents of those areas is in order to further assess the market. In 1990, there were 282,754 women ages 21 and older who lived in Washington, D.C. (Table 22, Appendix 1). Using the assumption that 15 percent of adult women might have a propensity to varicose veins, it is estimated that 31,025 women residing in Washington, D.C. are potential patients. Additionally, five percent of adult men, or

3,719 men could be afflicted with varicose veins. The total population of Washington, D.C. residents that are potential clients for sclerotherapy treatments is 34,744 residents.

The majority of Maryland residents seeking care in Washington, D.C. hospitals probably reside in two counties close to the city. These are Montgomery and Prince George's counties. There were 563,960 women and 503,558 men who lived in Montgomery or Prince George's counties in 1990 (Table 23, Appendix 1). If 15 percent of the adult females have varicose veins, then approximately 84,594 women are potential patients. If five percent of the male adult population had varicose veins, then 25,178 men residing in Montgomery or Prince George's counties were candidates for therapy. The result is a total population of 109,772 people who may be eligible for sclerotherapy treatment who lived in either Montgomery or Prince George's counties.

Virginia residents who receive services from Washington, D.C. hospitals probably reside in the adjacent cities of Alexandria or Falls Church or the counties of Arlington and Fairfax (Table 24, Appendix 1). Using the same percentages as mentioned above, there are 63,665 women and 20,114 men who had varicose veins. The total population of varicose vein sufferers who lived in the above Virginia cities or counties is 83,779 people.

The total of all potential clients for sclerotherapy treatments who lived in the Washington, D.C. commuting area in 1990 are delineated in Table 25 (Appendix 1). There was a total of 179,284 women and 49,011 men who suffered from varicose veins. This equates to a total of 228,295 people who are potential sclerotherapy patients. Even though the number of people who migrated from Washington, D.C. exceeds those who immigrated to the city, most of the emigrants moved to suburbs close to the District and could still come into the city for

treatment (Cohn and Casey 1996). Thus, the total population estimates remain good guidelines for predicting potential sclerotherapy patients.

Unfortunately, the U.S. Transportation Department does not keep statistics on the state of residence for Washington, D.C. workers. As a result, the rate of overlap between the two groups cannot be calculated. However, we do know that the market for sclerotherapy services in Washington, D.C. ranges from 71,596 workers in Washington, D.C. to 228,295 residents of the city and adjacent suburbs. This is a large population pool for sclerotherapy when one considers that one competitor has an office in downtown District of Columbia.

One crucial piece of information lacking is an estimate of the number of people with varicose veins who actually seek treatment. The literature did not contain any information which would provide an accurate estimate. A marketing study to determine this percentage of patients would be required if CHWMC decision makers desire additional information before making a final determination on the viability of the Varicose Vein Center. The future market for varicose vein treatment services appears strong and sustainable. Given that the population of the Washington, D.C. commuting area is getting older (U.S. Census 1995), a greater percentage of the population is projected to be requiring such services. Furthermore, insurance companies are supportive of sclerotherapy as well. Of eleven major managed care companies queried in the Washington, D.C. metro area, none stated that sclerotherapy was an unauthorized service for medical conditions (Table 26, Appendix 1) (Microcosm 1995; Washington Business Journal 1995). Most insurance agencies polled stated that sclerotherapy for cosmetic reasons was not covered, but that employees who chose high option plans might have selected cosmetic services covered under their policies. All of the managed care companies required preauthorization for sclerotherapy

treatment.

#### Service Differentiation

CHWMC's Varicose Vein Center should not compete on the basis of technology. There are two reasons to support this proposal. First, duplex ultrasound machines and laser technology drive up the cost of providing the service. Secondly, the medical literature does not prove that using this new equipment yields any better results than sclerotherapy. However, there is a market-niche which has not been explored by many of the competitors in this field. In most competitors' advertising, the cosmetic benefits of the procedure are featured. This is largely because these clinics make most of their profit on the second or third treatment visit. A brochure for the American Vein Institute (AVI) suggests that potential patients will have more than one treatment visit (AVI 1996). It explains there is "usually a two-week wait between sclerotherapy treatments." At CHWMC, the emphasis should be placed upon increasing quality of life, not "churning" patients to receive more revenue. Advertising should emphasize pain relief, low cost of treatment and quick recovery time. In fact, CHWMC could compete on total cost of treatment, with an emphasis on treating most patients with one sclerotherapy session.

#### Advertising

Mary Beth Emerson, CHWMC's director of public relations, recommended advertising in the Washington Post. Ms. Emerson states the Post is read widely in the area and usually generates many inquiries. She also mentioned that lighted signs at Metro stations had been used effectively in February 1995 to advertise the Alternative Birthing Center. She said the ads generated many telephone calls. The disadvantage to this form of advertising is that it is very

expensive. A two-month ad campaign at strategic Metro stops cost \$40,000. Sclerotherapy is the type of service which continuously needs to draw in new patients. Once the patients have treatment, most will not need another treatment for at least five years, if ever. For that reason, a continuous program of advertisements in the Washington Post appears to be the best advertisement strategy.

CHWMC could also send out fliers to the obstetricians, gynecologists and internal medicine physicians on staff to announce the new service. Primary care physicians in the plans that CHWMC has contracts with could also be contacted about the availability of the service. The Varicose Vein Clinic could also be mentioned at the quarterly breakfasts with physician practice coordinators and pamphlets describing the service could be given to them to put in their waiting rooms. A portion of a Workplace Wellness presentation could also be devoted to sclerotherapy.

### **Pro Formas**

There were many assumptions used in creating the pro forma for the CHWMC Varicose Vein Center. First, an estimate was derived for the potential volume of the clinic. The calculations for this model are described in the Pricing section of this paper. Then, an estimate of the monthly operating costs was derived (Table 27, Appendix 1). There were several assumptions made with regard to costs. First, it was assumed that all support personnel for the clinic would be newly-hired personnel. Thus, the projected personnel costs might be higher than would be experienced in the actual operation if existing CHWMC personnel were used to staff the clinic. Second, it was assumed that the space in the POB was excess, and no costs were assigned for

rent. The assumption was that these spaces would remain empty on Mondays and Wednesdays if the clinic were not approved. Third, CHWMC would have to purchase an IMEXLAB 9000SV at a rental cost of approximately \$500 per month for five years to perform venous reflux tests. Fourth, it was assumed that the physician(s) would be paid on a per-visit basis. The physicians would receive \$100 for both the treatment and follow-up visit and \$20 for an initial visit. These figures were not approved by Dr. Philip; however, in earlier discussions he stated that he would have to receive at least the Medicare reimbursement rate (\$87 for multiple injections) for the venture to be worth his time. It was assumed that Sotradecol (STS) would be the sclerant used. This pharmaceutical is not painless like Polidicanol, but it is approved for use by the FDA. Similarly, a model for revenues was developed (Table 28, Appendix 1). The revenue model was based in part on CHWMC inpatient revenue patterns (Table 29, Appendix 1) (CHWMC 1995a). In 1995, CHWMC received 39.9 percent of its revenues from managed care companies, 33.1 percent from Blue Cross/Blue Shield or other indemnity carriers. In the model, the managed care portion of revenue for the CHWMC Varicose Vein clinic was decreased to 34 percent, due to the possibility of denials of payment for the service. The proportion of self-payment patients was increased to 25 percent to allow for patients who will receive the treatment even though payment was denied by their insurance company. The percentage of uncompensated care was increased to 3 percent and the percentage of Medicaid patients was decreased to 3 percent. The percentage of Medicare patients was increased to reflect an age group which uses sclerotherapy treatments.

Currently, CHWMC has 24 contracts with managed care insurance plans. Each of these contracts provides for a discount from total charges for outpatient services. However, this discount differs from plan to plan. To estimate the amount of revenue from managed care plans,

1995 inpatient revenue data were used to determine the proportion of total managed care revenue received from each plan. Total managed care revenues were determined by multiplying each insurance plan's percentage of total managed care revenue by the percent discount, the percent of total revenues received by managed care companies, the number of patients and the total amount billed (Table 28, Appendix 1). The revenue from each managed care company was then summed. This was performed on a QuattroPro version 6.0 for Windows spreadsheet to allow for variation of billing amounts and number of patients. The only drawback to this model is that twelve of the contracts were negotiated in FY 96 and there were no estimates of income from those insurance plans as of this writing. These revenue estimates were used to create the revenue portion of the statistics budgets (Tables 17 and 18, Appendix 1). It was assumed that the clinic would start operation in FY 97 (Table 17, Appendix 1). The statistics budget for FY 97 includes a five month period before the clinic operated at full capacity. This short period was assumed because of the relatively small number of patients the clinic would be treating. It was assumed that the clinic would be operating at 33 percent of capacity in the first month, 50 percent of capacity in the second month, 66 percent of capacity in the fourth month and 75 percent of capacity in the fifth month. The projection assumed that the clinic would be running at full capacity by the 6th month and would continue to operate at full capacity through the fifth year (Tables 17 and 18, Appendix 1). There were no estimates to expand the operation of the clinic.

Using the information from the statistics budgets, a pro forma Statement of Revenues and Expenses was created (Table 30, Appendix 1). Operating revenue was defined in three ways: revenue from the clinic itself, revenue from imaging procedures that would be generated from the clinic and revenue from outpatient surgical procedures as a result of referrals from the clinic. It

was estimated that 34 percent of managed care patients would need imaging documentation to justify payment for medically necessary sclerotherapy. Additionally, it was assumed that five percent of all patients presenting for treatment would require surgery to treat their varicose veins. Operating expenses were derived from estimated monthly operating expenses (Table 27, Appendix 1). This pro forma estimates that there will be excess revenues over expenses for all fiscal years that the service is in operation.

From the pro forma statement of Revenues and Expenses, the pro forma Balance Sheet was developed (Table 31, Appendix 1). From the Statement of Revenues and Expenses and the Balance Sheet, the Statement of Cash Flows was developed (Table 32, Appendix 1). As is evident, this type of service generates a great amount of cash, due to the relatively low costs associated with this new service. The Net Present Value (NPV) of these returns was determined by estimating initial cash outlays for the start-up and then estimating the net cash flows from FY 97 to FY 01. The discount rate used was CHWF's Weighted Average Cost of Capital (WACC) (Table 33, Appendix 1). The WACC was determined by calculating the amount of interest paid in long term debts and interest earned from investments, summing them and dividing by the total of long-term debts and investments (Anderson 1995). The WACC, using the above method, was found to be 6.17 percent for FY 95. Assuming this discount rate, and a \$96,724 initial investment, the Net Present Value for this investment is \$678,407.

Leza and Placencia recommend that a break-even analysis be included in the financial analysis. The break-even analysis shows the effect of volume on the profitability of the proposed enterprise. The analysis shows the break-even point at 405 visits per year (Table 34 (Appendix 1) and Figure 4) or 59 percent of capacity. This is a very realistic goal, since the total number of patients needed for the clinic is relatively low.

## CHAPTER 3

### CONCLUSIONS

The strength of the proposed Varicose Vein Center at CHWMC is borne out by its performance in the three areas measured: mission, market and finances. The mission standard weighs the appropriateness of the proposed Varicose Vein Center against the mission and goals of CHWMC. The new CHWMC mission statement encourages services that “..contribute to the maintenance and enhancement of the quality of life for women and their families.” Sclerotherapy is a treatment which fits those parameters. It is a widely accepted treatment protocol that alleviates the pain that can be associated with varicose veins. This therapy is needed by women and men who are past their young adult years, which expands the population that CHWMC serves in a way which is consistent with the mission statement. Sclerotherapy “quickens the spirit and increases the vitality of life” by increasing patients’ self-esteem. This service is clearly within the guidelines set by the mission statement and meets the *mission* criteria.

Evaluation of the market includes a definition of the market and an analysis of the number of competitors in the market. Washington, D.C. has 71,596 workers who may potentially have varicose veins. Additionally, an estimated 228,295 residents of the city and nearby suburbs may suffer from varicose veins. The competitors who will deplete CHWMC’s pool of potential patients are located in downtown Washington, D.C., Bethesda and Rockville, Maryland and Annandale, Virginia. Assuming that those competitors average two treatment visits per patient

instead of CHWMC's one, those competitors would need 248 patients per month to operate at five days per week, 6.5 physician hours per day (using the QSB model to obtain the estimate). Add to that estimate CHWMC's 57 patients per month and there would need to be at least 305 patients per month, or 3,660 patients per year seeking treatment for the market to support all providers. Assuming that 30 percent of potential patients actually seek treatment, then from 21,478 D.C. workers to 68,489 residents are in the served market. If all of these people received treatment, it would take 5.9 years at current market capacity to treat all of the patients. Because sclerotherapy is effective for up to five years, the Washington, D.C. worker market could handle the entrance of the CHWMC Varicose Vein Center, given this set of assumptions. Since the city and suburban resident population is over three times as large as the worker population, it can be further assumed that the resident market could sustain the entrance of the CHWMC Varicose Vein Center as well. Further marketing studies would have to be performed to determine if these assumptions were correct.

The financial statements presented herein make the strongest case for initiating the CHWMC Varicose Vein Center. These financial statements were fiscally conservative in their assumptions. They assumed that all employees would have to be hired from outside of the Columbia Hospital for Women Foundation. If employees were transferred from another division of the hospital, the finances of this proposed venture would be even more favorable. The pro forma Statement of Revenues and Expenses shows an excess of revenues over expenses from \$128,075 in FY 97 to \$240,270 in FY 01. The break-even point for this venture is 34 visits per month or 405 per year. This equates to approximately 60 percent of capacity. This is reasonable, given the limited capacity of the clinic. The final financial test is the Net Present Value of the project. This was determined by adding all cash outlays for the first year with the net revenues

over expenses for operating years 1997 through 2001. This discount rate was set at CHWMC's WACC, which was 6.17 percent for FY 95. The Net Present Value for this project was \$678,407, clearly making this venture a profitable venture for CHWF.

Table 35 (Appendix 1) summarizes the findings of the Business Plan for the CHWMC Varicose Vein Center. It lists the internal strengths, internal weaknesses, external opportunities and external threats that apply to the CHWMC Varicose Vein Center. This chart is commonly known as a "SWOT" analysis. As Table 35 clearly delineate, the benefits of proceeding with this service clearly outweigh the risks. CHWMC should strongly consider adopting this service.

## CHAPTER 4

### RECOMMENDATIONS

Two additional market studies may be needed to help CHWMC decision makers with the analysis of the proposed Varicose Vein Center. A survey of local women in their late twenties and older is needed to determine the number of women with varicose veins who would be interested in being treated for this condition. The information cost to obtain this information would have to be considered in relation to the relatively small start-up costs associated with the Varicose Vein Center. Additionally, it would be helpful to ascertain the residences of Washington, D.C. workers using U.S. Census data to further pinpoint the universe of potential patients.

**Table 9**  
**Columbia Hospital for Women Medical Center**  
**Average Lengths of Stay by Medical Service**  
**FY 91 - FY 95**

Medical Service	FY 91	FY 92	FY 93	FY 94	FY 95	% Difference FY91/95
<b>Surgery</b>	3.75	3.44	2.7	2.5	1.98	-89.4%
<b>Internal Medicine</b>	6.05	6.44	2.42	4.42	3.2	-89.1%
<b>Oncology</b>	5.28	6.62	4.8	4.07	4.06	-30.0%
<b>Obstetrics</b>	3.25	3.12	2.86	2.7	2.5	-30.0%
<b>Newborn (Normal)</b>	3.95	3.8	3.67	3.56	3.15	-25.4%
<b>Gynecology</b>	3.61	3.44	3.15	2.91	2.88	-25.3%
<b>Plastic Surgery</b>	1.37	1.21	1.23	2.19	1.16	-18.1%
<b>Urology</b>	3.49	3.21	3.63	2.38	3.02	-15.6%
<b>Laser Surgery</b>	2.98	2.82	2.55	3.34	2.59	-15.1%
<b>Neonatology</b>	46.3	45.22	38.5	42.18	41.54	-11.5%
<b>Microsurgery</b>	3.25	3.2	3	0	0	0.0%
<b>Pediatrics</b>	10.5	1	31.9	34.11	30.2	65.2%

Source: CHWMC AS400 Inpatient Demand Administrative Report

**Table 10**  
**Columbia Hospital for Women Medical Center**  
**Total Patient Days - FY 91 - FY 95**

Medical Service	FY 91	FY 92	FY 93	FY 94	FY 95	% of Total FY 91	% of Total FY 95	% Difference FY 91 - FY 95
<b>Oncology</b>	846	1,133	778	419	154	1.6%	0.5%	-449.4%
<b>High Risk Nursery</b>	2,110	2,166	1,704	1,556	965	4.1%	2.9%	-118.7%
<b>Normal Newborns</b>	13,461	12,870	11,220	8,774	7,797	26.1%	23.5%	-72.6%
<b>Gynecology</b>	7,322	6,609	5,305	4,579	4,146	14.2%	12.5%	-76.6%
<b>Internal Medicine</b>	109	161	34	31	64	0.2%	0.2%	-70.3%
<b>Urology</b>	227	183	171	211	136	0.4%	0.4%	-66.9%
<b>Obstetrics</b>	20,750	20,713	17,718	15,371	12,856	40.2%	38.7%	-61.4%
<b>Plastic Surgery</b>	22	23	26	46	14	0.0%	0.0%	-57.1%
<b>Surgery</b>	645	700	511	515	427	1.3%	1.3%	-51.1%
<b>Laser Surgery</b>	245	175	23	31	171	0.5%	0.5%	-43.3%
<b>Microsurgery</b>	13	48	3	0	0	0.0%	0.0%	0.0%
<b>Radiology</b>	0	0	2	0	0	0.0%	0.0%	0.0%
<b>Neonate ICU</b>	5,826	6,164	6,685	7,628	6,315	11.3%	19.0%	7.7%
<b>Pediatrics</b>	21	2	383	307	151	0.0%	0.5%	86.1%
<b>Total</b>	<b>51,597</b>	<b>50,947</b>	<b>44,563</b>	<b>39,468</b>	<b>33,196</b>	<b>100.0%</b>	<b>100.0%</b>	<b>-55.4%</b>

Source: CHWMC AS400 Demand Inpatient Administrative Summary Report

**Table 11**  
**Columbia Hospital for Women Medical Center**  
**Discharges by Medical Service**  
**FY 91 - FY 95**

Medical Service	FY 91	FY 92	FY 93	FY 94	FY 95	% Difference FY 91/95
<b>High Risk Nursery</b>	<b>525</b>	<b>468</b>	<b>403</b>	<b>339</b>	<b>322</b>	<b>-63.0%</b>
<b>Neonate ICU</b>	<b>352</b>	<b>381</b>	<b>372</b>	<b>351</b>	<b>234</b>	<b>-50.4%</b>
<b>Gynecology</b>	<b>2,023</b>	<b>1,918</b>	<b>1,682</b>	<b>1,571</b>	<b>1,364</b>	<b>-36.7%</b>
<b>Urology</b>	<b>65</b>	<b>57</b>	<b>47</b>	<b>65</b>	<b>47</b>	<b>-38.3%</b>
<b>Plastic Surgery</b>	<b>16</b>	<b>19</b>	<b>21</b>	<b>21</b>	<b>12</b>	<b>-33.3%</b>
<b>Obstetrics</b>	<b>6,378</b>	<b>6,630</b>	<b>6,182</b>	<b>5,682</b>	<b>5,132</b>	<b>-24.3%</b>
<b>Laser Surgery</b>	<b>82</b>	<b>62</b>	<b>9</b>	<b>13</b>	<b>66</b>	<b>-24.2%</b>
<b>Neonatology</b>	<b>13</b>	<b>9</b>	<b>12</b>	<b>11</b>	<b>11</b>	<b>-18.2%</b>
<b>Newborn (Normal)</b>	<b>4,380</b>	<b>4,613</b>	<b>4,434</b>	<b>4,222</b>	<b>3,983</b>	<b>-10.0%</b>
<b>Microsurgery</b>	<b>4</b>	<b>15</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Internal Medicine</b>	<b>18</b>	<b>25</b>	<b>14</b>	<b>7</b>	<b>20</b>	<b>10.0%</b>
<b>Surgery</b>	<b>172</b>	<b>203</b>	<b>189</b>	<b>206</b>	<b>215</b>	<b>20.0%</b>
<b>Pediatrics</b>	<b>2</b>	<b>2</b>	<b>12</b>	<b>9</b>	<b>5</b>	<b>60.0%</b>
<b>Oncology</b>	<b>160</b>	<b>171</b>	<b>171</b>	<b>105</b>	<b>116</b>	<b>-37.9%</b>
<b>Radiology</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Unknown</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>0</b>
<b>Total</b>	<b>14,190</b>	<b>14,573</b>	<b>13,550</b>	<b>12,602</b>	<b>11,568</b>	<b>-22.7%</b>

Source: CHWMC AS400 Inpatient Demand Administrative Report, November 1995

**Table 12**  
**Columbia Hospital for Women Medical Center**  
**Outpatient Procedures**  
**FY 91 - FY 95**

Medical Service	FY 91	FY 92	FY 93	FY 94	FY 95	% Difference FY 91-FY 95
<b>Urology</b>	61	148	174	165	214	250.8%
<b>Plastic Surgery</b>	15	21	15	19	33	120.0%
<b>Obstetrics</b>	39	49	60	63	59	51.3%
<b>Microsurgery</b>	0	2	1	0	0	0.0%
<b>Newborn (Normal)</b>	0	1	2	0	0	0.0%
<b>Other</b>	0	0	0	1	2	0.0%
<b>Surgery</b>	957	1,035	984	915	906	-5.3%
<b>Gynecology</b>	4,170	3,837	3,949	3,548	3,107	-25.5%
<b>Oncology</b>	26	25	59	22	17	-34.6%
<b>Internal Medicine</b>	5	5	7	3	2	-60.0%
<b>Laser Surgery</b>	729	580	76	72	257	-64.7%
<b>Total</b>	6,002	5,703	5,327	4,808	4,597	-23.4%

Source: CHWMC AS400 Outpatient Surgeries Report, November 1995

**Table 13**  
**Columbia Hospital for Women Foundation**  
**Consolidated Statements of Revenues and Expenses**  
**Fiscal Years 91 - 95**

	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>
<b>Patient Service Revenue</b>	92,680	70,914	69,218	68,888	59,304
<b>Less - Deductions from Revenue</b>	(28,968)	0	0	0	0
<b>Net patient service revenue</b>	63,712	70,914	69,218	68,888	59,304
<b>Other operating revenue</b>	6,276	5,841	2,681	3,173	3,953
<b>Rental Income</b>			2,250	2,975	2,214
<b>Total Operating revenue</b>	69,988	76,755	74,149	75,036	65,471
<b>OPERATING EXPENSES</b>					
<b>Salaries and benefits</b>	36,833	38,930	40,099	36,387	35,335
<b>Supplies and other</b>	24,579	24,795	20,953	24,151	22,693
<b>Provision for bad debts</b>		4,702	5,836	6,305	4,748
<b>Depreciation and amortization</b>	2,665	3,061	3,074	2,990	3,821
<b>Interest Expense</b>	3,160	3,285	2,838	2,902	2,849
<b>Total Operating Expenses</b>	67,237	74,773	72,800	72,735	69,446
<b>Income from Operations</b>	2,751	1,982	1,349	2,301	(3,975)

Source: Arthur Anderson and Co. Audited Financial Statements, FY 91 - FY 95

Table 14  
**Columbia Hospital for Women Foundation, Inc and Subsidiaries**  
**Consolidated Balance Sheets**  
**FY 91 - FY 95**

	1991	1992	1993	1994	1995	Liabilities and Fund Balances	1991	1992	1993	1994	1995
<b>Current Assets</b>											
Cash and Cash Equivalents	371	404	4,292	6,863	5,827						
Cash, restricted for tenant security deposits	135	—	2,413	5,202	5,502						
Short-term investments	2,336	3,114	—	—	—						
Patient accounts receivable, net of allowances for uncollectible accounts	22,952	23,908	20,357	16,305	13,049						
Supplies, Inventory and other current assets	1,768	2,230	1,500	1,434	1,367						
<b>Total Current Assets</b>	27,562	28,656	28,562	29,804	25,745						
Property, Plant and Equipment											
Land and buildings	57,825	60,614	63,015	63,281	64,004						
Major movable and fixed equipment	16,843	17,477	18,216	16,141	17,172						
Construction work in progress	1,210	1,880	78	242	—						
Land acquisition costs	316	398	403	403	—						
Less - Accumulated depreciation	76,294	80,379	81,712	80,067	81,176						
Net property, plant and equipment	58,226	59,514	57,982	56,111	54,136						
Assets whose use is limited:											
Investments, board-designated for property, replacement and expansion	9,794	7,081	7,416	9,125	9,334						
Self-insurance funds held by trustee	6,816	6,753	8,725	10,071	11,314						
Deferred compensation investments	459	390	274	1,308	1,053						
Investments, donor restricted	365	453	738	841	825						
Investments, Bond Proceeds											
Deferred Financing Costs, net of amortization	17,434	14,677	17,153	21,345	22,526						
Other Noncurrent Assets	1,123	1,085	1,046	1,008	970						
<b>Total Assets</b>	104,721	105,410	105,230	106,756	103,662						
						<b>Total Liabilities and fund balances</b>					
						104,721	105,410	105,230	106,756	103,662	

Source: Arthur Andersen and Co. Audited Financial Statements, FY 91 - FY 95

**Table 15**  
**CHWMC Percentage of Six High Volume DRGs**  
**District of Columbia Hospitals (Except Federal Facilities and Hadley Hospital)**  
**CY 1994**

DRG	Description	CHWMC Discharges CY 94	CHWMC Percentage Discharges	DC Hospitals CY 94 Discharges	DC Hospitals Percentage Discharges	CHWMC % Total D. C. Discharges
373	Vaginal Delivery w/o Complications	3,024	19.05%	7,816	4.80%	38.69%
391	Normal Newborn	331	2.09%	6,358	3.90%	5.21%
390	Neonate w/other significant	2,197	13.84%	5,710	2.30%	38.48%
410	Chemotherapy w/o Acute Leukemia as Secondary Diagnosis	41	0.26%	2,502	1.60%	1.64%
371	Cesarean Section w/o complications	911	5.74%	2,863	1.30%	31.82%
390	Full Term neonate w major problems	367	3.21%	2,026	1.10%	18.11%

Source: DCHA Patient Data System Data Book, Special Edition for DCHA Hospital /Associate Members, Winter 1996

Table 16  
Columbia Hospital for Women Medical Center  
Top 96 Percent of Discharges  
By DRG FY 91 - FY 95

DRG	Description	FY 91 Discharges	Percentage DRGs FY 91	FY 92 Discharges	Percentage DRGs FY 92	FY 93 Discharges	Percentage DRGs FY 93	FY 94 Discharges	Percentage DRGs FY 94	FY 95 Discharges	Percentage DRGs FY 95
373	Vaginal Delivery w/o Complications	3,060	17.86%	3,336	18.99%	3,138	19.66%	3,024	19.05%	2,755	17.07%
391	Normal Newborn	1,416	8.26%	1,769	10.07%	1,331	2.07%	1,331	2.09%	2,172	13.46%
359	Uterine and Adnexa Procedure	1,583	9.24%	1,653	9.41%	1,437	9.01%	1,347	8.49%	1,223	7.58%
371	Cesarean Section w/o complications	1,306	7.62%	1,271	7.24%	1,071	6.71%	710	5.74%	862	5.34%
364	D&C, Conization	1,212	7.07%	998	5.68%	791	4.96%	607	4.47%	594	3.68%
381	Abortion w/D&C, Aspiration	842	4.91%	717	4.08%	725	4.54%	607	3.82%	588	3.64%
361	Laparoscopy & Incisional Tubal Ligation	773	4.51%	367	2.08%	440	2.76%	440	2.77%	308	1.91%
262	Breast Biopsy & Local Excision	644	3.76%	671	3.82%	528	3.31%	528	3.33%	507	3.14%
370	Cesarean Section w/complications	463	2.70%	396	2.25%	457	2.86%	457	2.88%	406	2.52%
383	Other Antepartum Diagnoses	447	2.61%	499	2.84%	351	2.20%	351	2.21%	283	1.75%
362	Endoscopic Tubal Interruption	435	2.54%	421	2.40%	321	2.01%	321	2.02%	304	1.88%
360	Vagina, cervix & vulva procedures	403	2.35%	352	2.00%	274	1.72%	274	1.73%	257	1.59%
379	Threatened abortion	397	2.32%	399	2.27%	295	1.85%	295	1.86%	194	1.20%
461	OR procedure w/diagnosis of OT	361	2.11%	439	2.50%	452	2.83%	452	2.85%	502	3.11%
358	Uterine & Adnexa Procedure for n	354	2.07%	322	1.83%	400	2.51%	405	2.55%	460	2.85%
372	Vaginal delivery w/complications	279	1.63%	325	1.85%	330	2.07%	333	2.10%	338	2.09%
384	Other antepartum diagnosis	251	1.47%	255	1.45%	226	1.42%	227	1.43%	224	1.39%
390	Neonate w/other significant	251	1.47%	362	2.06%	2,197	13.76%	2,197	13.84%	1,288	7.98%
389	Full Term neonate w/ major problems	249	1.45%	240	1.37%	367	2.30%	367	2.31%	517	3.20%
270	Other skin, subcut Tissue	222	1.30%	220	1.25%	178	1.12%	178	1.12%	203	1.26%
387	Prematurity w/ major problems	144	0.84%	153	0.87%	185	1.16%	185	1.17%	160	0.99%
378	Ectopic Pregnancy	137	0.80%	126	0.72%	79	0.49%	79	0.50%	69	0.43%
374	Vaginal Delivery w/sterilization	120	0.70%	92	0.52%	110	0.69%	110	0.69%	108	0.67%
369	Menstrual & other female	106	0.62%	92	0.52%	56	0.35%	56	0.35%	52	0.32%
382	False Labor	102	0.60%	89	0.51%	48	0.30%	48	0.30%	33	0.20%
260	Subtotal mastectomy	101	0.59%	30	0.17%	153	0.96%	153	0.96%	156	0.97%
368	Infections, Female reproductive	80	0.47%	58	0.33%	22	0.14%	22	0.14%	30	0.19%
376	Postpartum & Post abortion	67	0.39%	58	0.33%	48	0.30%	48	0.30%	31	0.19%
380	Abortion w/o D&C	67	0.39%	66	0.38%	68	0.43%	68	0.43%	60	0.37%
388	Prematurity w/o major problems	65	0.38%	124	0.71%	152	0.95%	152	0.96%	201	1.25%
477	Non-extensive OR Procedure	65	0.38%	56	0.32%	32	0.20%	32	0.20%	28	0.17%
410	Chemotherapy w/o Acute Leukemia as Secondary Diagnosis	60	0.35%	62	0.35%	41	0.26%	41	0.26%	48	0.30%
386	Extreme immaturity or respiratory	54	0.32%	64	0.36%	87	0.55%	87	0.55%	58	0.36%
356	Female Reproductive system	53	0.31%	35	0.20%	48	0.30%	48	0.30%	46	0.29%
363	D&C, Conization & Radio-imp	51	0.30%	70	0.40%	44	0.28%	44	0.28%	58	0.36%
267	Perianal & Pilonidal Procedure	46	0.27%	20	0.11%	16	0.10%	47	0.30%	16	0.10%
158	Anal & Stomal Procedures	46	0.27%	31	0.18%	26	0.16%	26	0.16%	16	0.10%
276	Non-malignant Breast disorder	45	0.26%	51	0.29%	20	0.13%	20	0.13%	16	0.10%
261	Breast Procedure for nonmalignancy	43	0.25%	30	0.17%	38	0.24%	38	0.24%	26	0.16%
377	Post Partum & Post Abortion	43	0.25%	29	0.17%	33	0.21%	33	0.21%	24	0.15%
258	Total Mastectomy for Malignancy	34	0.20%	45	0.26%	38	0.24%	38	0.24%	37	0.23%
Total DRG's	Total DRGs	17,133	100.00%	17,566	100.00%	15,961	100.00%	15,870	100.00%	16,136	100.00%

Source: CHWMC AS400 DRG Charge Variance Summary Report By DRG Ranking

**Table 17**  
**Varicose Vein Clinics**  
**In the Washington, D.C. Commuter Area**  
**As of March 1996**

Organization Name	Address	Telephone Number	Procedure	CPT Code	Cost	Technique
American Vein Institute (Corporation started in January 1996)	1145 19th Street, N.W., Suite 717, Washington, D.C. Rockville, Maryland Manassas, Virginia	(202) 298-8346 (301) 881-1940 (703) 361-8596	Initial Consultation Testing Injections each	93965 36471	\$60 \$350	Sclerotherapy Will do Laser Duplex Ultrasound
Circulatory Center (Bought out now American Vein Institute)	8000 Towers Crescent Drive, Tysons Corner, VA	(703) 847-4444	Over injections Initial consultation Testing Over 6 injections	36471	\$60	Sclerotherapy
Peripheral Vascular of Northern Virginia	Fairfax, Virginia Reston, Virginia	(703) 641-9677 (703) 742-0308	Initial consultation Testing Over 6 injections One injection Ligation	93965 36471 36471 37700	\$125 \$252 \$350 \$1,200	Sclerotherapy No laser
The Varicose Vein Center	4800 Montgomery Lane, Bethesda, MD	(301) 907-7230	Consultation Injections Varicose Veins Injections - spider veins	93965 36471	\$60 \$350	No laser
Vein Clinics of America	8075 Leesburg Pike, Vienna, VA Bethesda, Maryland Owings Mills, Maryland (Baltimore suburb)	(703) 556-4488	Consultation Injections Varicose Veins Injections - spider veins	93965 36471	\$85 \$350	Will do laser Tx Duplex Ultrasound
Vein Institute of Virginia	130 Park Street SE, Vienna, VA	(703) 938-4134	Initial Consultation Testing Injections per session Injections - spider	93965 36471	\$60 \$350	No laser
Vein Institute of Metro. Washington, D.C.	3301 Woodburn Road, Annandale, VA	(703) 280-5858 (703) 573-5500	Testing Injections -Spider no insurance Injections - varicose	93965 36471	\$365 \$220 \$365	Doppler Sclerotherapy No laser

Source: 1995-1996 C&P Yellow Pages for Washington, D.C., Northern Virginia and Maryland  
 Washington Post - March 26, 1996

**Table 18**  
**Statistics Budget**  
**Varicose Vein Center**  
**Columbia Hospital for Women Medical Center**  
**FY 97**

	July 96	Aug 96	Sept 96	Oct 96	Nov 96	Dec 96	Jan 97	Feb 97	Mar 97	Apr 97	May 97	Jun 97	Total FY 97
Number of Initial Visits	19	29	38	43	57	57	57	57	57	57	57	57	585
Revenue for Initial Visits	\$969	\$1,425	\$1,900	\$2,150	\$2,850	\$2,850	\$2,850	\$2,850	\$2,850	\$2,850	\$2,850	\$2,850	\$29,244
Number of Treatment Visits	19	29	38	43	57	57	57	57	57	57	57	57	585
Revenue for Treatment Visits	\$6,012	\$8,841	\$11,671	\$13,262	\$17,683	\$17,683	\$17,683	\$17,683	\$17,683	\$17,683	\$17,683	\$17,683	\$181,249
<b>Total Outpatient Revenue</b>	<b>\$6,981</b>	<b>\$10,266</b>	<b>\$13,571</b>	<b>\$16,412</b>	<b>\$20,533</b>	<b>\$210,493</b>							
Number of Tests	2	3	4	5	7	7	7	7	7	7	7	7	68
Revenue for Tests	\$608	\$894	\$1,107	\$1,253	\$1,660	\$1,660	\$1,660	\$1,660	\$1,660	\$1,660	\$1,660	\$1,660	\$17,146
Number of Surgeries DRG 119	1	1	2	2	3	3	3	3	3	3	3	3	30
Revenue for Surgeries	\$2,626	\$3,808	\$5,252	\$5,252	\$7,878	\$7,878	\$7,878	\$7,878	\$7,878	\$7,878	\$7,878	\$7,878	\$79,962
<b>Total Revenue</b>	<b>\$10,329</b>	<b>\$14,968</b>	<b>\$19,930</b>	<b>\$21,917</b>	<b>\$30,071</b>	<b>\$307,600</b>							

Source: Estimated Monthly Operating Costs, CHWMC Vein Center Proposal

Estimated Monthly Revenues, CHWMC Vein Center Proposal

\* Assumes a 2.5% increase in revenues each year, FY 98 - FY 01

**Table 19**  
**Statistics Budget**  
**Varicose Vein Center**  
**Columbia Hospital for Women Medical Center**  
**Varicose Vein Center**  
**FY 97 - FY 01**

Total FY 97	Total FY 98	Total FY 99	Total FY 00	Total FY 01
585	684	684	684	684
\$29,244	\$34,200	\$41,040	\$54,600	\$54,600
585	684	684	684	684
\$181,249	\$217,499	\$251,950	\$258,247	\$264,706
<b>\$210,493</b>	<b>\$251,699</b>	<b>\$292,990</b>	<b>\$312,847</b>	<b>\$319,306</b>
68	84	84	84	84
\$17,146	\$21,697	\$22,240	\$22,796	\$23,366
30	36	36	36	36
\$79,962	\$96,899	\$99,322	\$101,805	\$104,314
<b>\$307,600</b>	<b>\$370,295</b>	<b>\$414,552</b>	<b>\$437,447</b>	<b>\$446,986</b>

Source: Estimated Monthly Operating Costs, CHWMC Vein Center Propc

\* Estimated Monthly Revenues, CHWMC Vein Center Proposal

\* Assumes a 2.5% increase in revenues each year, FY 98 - FY 01

**Table 20**  
**Workers By Occupational Type**  
**Washington, D. C.**  
**1990**

Type of Duties	Women	Percent of Women	Men	Percent of Men	Total Occupational Class	% Occupational Class
Professional Specialty Occupations	77,336	22.0%	92,171	24.3%	169,507	23.2%
Executive, Administrative, Managerial	80,557	23.0%	86,742	22.8%	167,299	22.9%
Administrative Support Occupations including Clerks	106,133	30.3%	39,440	10.4%	145,573	19.9%
Service Occupations, except Protective & Household	29,912	8.5%	25,835	6.8%	55,747	7.6%
Technicians and Related Support Occupations	19,065	5.4%	20,523	5.4%	39,588	5.4%
Precision Products, Crafts & Repair Occupations	3,245	0.9%	35,074	9.2%	38,319	5.2%
Sales Occupations	17,492	5.0%	19,287	5.1%	36,779	5.0%
Protective Service Occupations	3,944	1.1%	16,226	4.3%	20,170	2.8%
Transportation and Material Moving Occupations	1,166	0.3%	14,358	3.8%	15,524	2.1%
Armed Forces	3,120	0.9%	12,065	3.2%	15,185	2.1%
Machine Operators, Assemblers, Inspectors	3,274	0.9%	7,499	2.0%	10,773	1.5%
Handlers, Equipment Cleaners, Laborers	1,272	0.4%	8,695	2.3%	9,967	1.4%
Private Household Occupations	3,839	1.1%	136	0.0%	3,975	0.5%
Farming, Forestry and Fishing	382	0.1%	1,660	0.4%	2,042	0.3%
All Occupations	350,737	100.0%	379,711	100.0%	730,448	100.0%

Source: U.S. Department of Transportation, 1990 Census Transportation Planning Package

**Table 21**  
**Workers Age 16 + By**  
**Type of Organization**

Type of Organization	Number of Women Workers	% Women	Number of Men Workers	% Men	Total Workers
Private, For-Profit	140,447	40.04%	163,464	43.05%	303,911
Federal Government	108,800	31.02%	128,622	33.87%	237,422
Private, Not-for-Profit	59,715	17.03%	41,191	10.85%	100,906
Local Government	25,412	7.25%	22,718	5.98%	48,130
Self-Employed	9,413	2.68%	18,285	4.82%	27,698
State Government	6,442	1.84%	5,017	1.32%	11,459
Unpaid family worker	508	0.14%	414	0.11%	922
Total All Types	350,737	100.00%	379,711	100.00%	730,448

Source: 1990 Census Transportation Planning Package, U.S. Bureau of Transportation Statistics

**Table 22**  
**Population Residing in**  
**Washington, D.C.**  
**1990**

Age Group	Women	Men	Total	Percent Likely to use Sclerotherapy		
				Women	Men	Total
21 to 24 Years	21,006	24,605	45,611	3,151	369	3,520
25 to 34 Years	59,425	63,352	122,777	8,914	950	9,864
35 to 44 Years	45,729	49,255	94,984	6,859	739	7,598
45 to 54 Years	29,235	33,413	62,648	4,385	501	4,886
55 to 61 Years	16,063	19,454	35,517	2,409	292	2,701
62 to 64 Years	6,846	8,687	15,533	1,027	130	1,157
65 to 74 Years	18,301	26,869	45,170	2,745	403	3,148
75 + Years	10,230	22,272	32,502	1,535	334	1,869
<b>Total</b>	<b>282,754</b>	<b>324,146</b>	<b>608,890</b>	<b>31,025</b>	<b>3,719</b>	<b>34,744</b>

Source: U.S. Department of Transportation,  
 1990-Census Transportation Planning Package

**Table 23**  
**Population in Montgomery and Prince George's Counties**  
**State of Maryland**  
**1990**

Age Group	Montgomery County			Prince George's County			Total Both Counties			Percent Likely to use Sclerotherapy		
	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total
21 to 24 Years	21,444	19,982	41,426	27,957	27,000	54,957	49,401	46,982	96,383	7,410	2,349	9,759
25 to 34 Years	77,071	72,930	150,001	78,430	73,987	152,417	155,501	146,917	302,418	23,325	7,346	30,671
35 to 44 Years	70,587	63,733	134,320	63,582	57,481	121,063	134,169	121,214	255,383	20,125	6,061	26,186
45 to 54 Years	46,182	43,542	89,724	43,078	39,556	82,634	89,260	83,098	172,358	13,389	4,155	17,544
55 to 61 Years	22,544	20,998	43,542	20,183	19,172	39,355	42,727	40,170	82,897	6,409	2,009	8,418
62 to 64 Years	9,492	8,675	18,167	6,962	6,094	13,056	16,454	14,769	31,223	2,468	738	3,207
65 to 74 Years	25,909	20,084	45,993	18,672	14,401	33,073	44,581	34,485	79,066	6,687	1,724	8,411
75 + Years	20,614	10,478	31,092	11,253	5,445	16,698	31,867	15,923	47,790	4,780	796	5,576
Total	293,843	260,422	554,265	270,117	243,136	513,253	563,960	503,558	1,067,518	84,594	25,178	109,772

Source: U.S. Department of Transportation, 1990 Census Transportation Planning Package

**Table 25**  
**Potential Patients Residing**  
**in the Washington, D.C. Metro Area**  
**1990**

	Washington, D.C.	Montgomery & Prince George's Counties Maryland	Falls Church, Alexandria, Arlington and Fairfax Counties	Total All Areas
<b>Women</b>	31,025	84,594	63,665	179,284
<b>Men</b>	3,719	25,178	20,114	49,011
<b>Total</b>	34,744	109,772	83,779	228,295

Source: U.S. Department of Transportation, 1990 Census Transportation Planning Package

**Table 25**  
**Potential Patients Residing**  
**in the Washington, D.C. Metro Area**  
**1990**

	Washington, D.C.	Montgomery & Prince George's Counties Maryland	Falls Church, Alexandria, Arlington and Fairfax Counties	Total All Areas
<b>Women</b>	<b>31,025</b>	<b>84,594</b>	<b>63,665</b>	<b>179,284</b>
<b>Men</b>	<b>3,719</b>	<b>25,178</b>	<b>20,114</b>	<b>49,011</b>
<b>Total</b>	<b>34,744</b>	<b>109,772</b>	<b>83,779</b>	<b>228,295</b>

Source: U.S. Department of Transportation, 1990 Census Transportation Planning Package

**Table 26**  
**Managed Care Companies in the**  
**Washington D.C. Commuting Area**  
**1995**

69

Name	Type of Business	Total Enrollment
Aetna Health Plans of the Mid-Atlantic	PPO	224,409
Aetna Health Plans of the Mid-Atlantic, Inc.	HMO	57,315
Affordable Health Care Compare		
America's Health Plan Inc.	Provider Network	
American Healthcare, Inc.		
BC/BS NCA Capital Care	HMO	101,588
BC/BS of the National Capital Area	PPO	476,118
Blue Cross and Blue Shield of Maryland (Carefirst/Potomac State)	HMO	72,427
Chartered Health Plan		
Chesapeake Health Plan	HMO	68,694
Cigna Healthcare Mid-Atlantic	HMO	120,000
Cigna Healthcare Mid-Atlantic	PPO	48,781
Community Care Network Inc (CCN)	PPO	19,310
Trigon/BC/BS of VA/Healthkeepers		
Humana Group Health Plan, Inc	HMO	116,000
Principal HMO (Lincoln National)		
MAMSI (M.D. IPA)/Optimum Choice	HMO	364,361
Mega Life & Health Ins. Co		
Metlife Healthcare Management Corporation		
Multiplan Inc of VA	Provider Network	110,000
National Capital PPO	Provider Network	165,000
National Healthcare Systems	Dental	
New York Life/ Sanus/Passport	PPO	50,000
New York Life/HealthPlus	HMO	290,000
Principal Health Care		
Private Healthcare Systems, INC	Provider Network	212,500
Prudential Plus of the Mid-Atlantic	PPO	86,735
The George Washington University Health Plan	HMO	83,500
The Travelers		
Trigon Blue Cross/Blue Shield	PPO	6,469
USA Healthnetwork		
Virginia Health Partners		
<b>Total</b>		<b>2,673,207</b>

Sources: Washington Business Journal "Book of Lists 1995" &  
 Dun & Bradstreet's Microcosm Database of Companies

**Table 27**  
**Estimated Monthly Operating Costs**  
**CHWMC Varicose Vein Center**

70

Item	Units/Hours (sq ft) Per Month	Unit cost/Rental Cost/Hourly Cost	No. of Units	Total Cost Per Month
<b>Variable Costs</b>				
Pharmaceuticals				
Sotradecol 3%	5 X 2ml	\$60.95	20	\$1,219
Medical Supplies				
Syringe	7.36/100	\$0.07	57	\$4
Needles (27-33 gauge)	3.25/100	\$0.03	57	\$2
Alcohol Swabs	1.18/100	\$0.01		
Gauze 4x4 non-sterile	7.72/200	\$0.19		
Gloves	5.53/100	\$0.11	260	\$29
Elastic stockings	1 pair per patient	\$5.00	57	\$285
<b>Total Costs Medical Supplies/Pharmaceuticals</b>				<b>\$1,539</b>
Forms	184 per 950	\$0.19	200	\$39
Charts/Medical Records Labels		\$1.00	57	\$57
Physician Payment - Initial Visit	57	\$20.00		\$1,140
Physician Payment - Sclerotherapy Visit	57	\$100.00		\$5,700
<b>Variable Costs Per Visit - Sclerotherapy</b>				<b>\$127</b>
<b>Variable Costs Per Visit - Initial Visit</b>				<b>\$21</b>
<b>Total Variable Costs Per Month (All Types of Visits)</b>				<b>\$8,475</b>
<b>Variable Costs Per Visit - All Visits</b>				<b>\$149</b>
<b>Fixed Costs</b>				
Personnel				
Receptionist	69.33	\$9.87	1	\$684
LVN	69.33	\$9.51	1	\$659
Billing Clerk	69.33	\$12.75	1	\$884
<b>Subtotal</b>				<b>\$2,227</b>
Fringe Benefits	18.00%			\$401
<b>Total Personnel Costs</b>				<b>\$3,111</b>
Advertising				
Pamphlets				\$417
Washington Post				\$3,750
<b>Operating Expenses (Electricity, sewer, etc.)</b>	1000	\$0.14	0.33	\$45
<b>Medical Equipment Rental</b>				
IMEXLAB 9000SV				\$500
<b>Office Supplies (Boise-Cascade Catalogue)</b>				
Uniball Onyx Black Pens	1 pen	\$0.99	24	\$24
Photocopier Paper	Box of 5000 sheets	\$116.00	0.5	\$58
Toner for Photocopier	1 cartridge (3000 copies)	\$100.00	0.3	\$30
Writing pads	1 each	\$2.38	10	\$24
Post-it Notes	1 each	\$1.60	20	\$32
Phone Message Book	1 each	\$9.75	1	\$10
Miscellaneous		\$50.00	1	\$50
<b>Total Office Supplies</b>				<b>\$227</b>
<b>Telephone Service</b>		\$50.00		<b>\$50</b>
<b>Total Fixed Costs Per Month</b>				<b>\$8,100</b>
<b>Total of all Expenses Per Month</b>				<b>\$16,575</b>

**Sources of Information:**

CHWMC Materials Management Department (Medical Supplies)

Boise-Cascade Office Products Catalogue (Office Supplies)

Imex Medical Systems, Inc. for PPG Unit

CHWMC Professional Services Corporation (Rent, Utilities, Telephone)

CHWMC Marketing and Community Relations Department (estimates concerning Advertising)

Burger & Brunswick, Inc. (Pharmaceutical Information)

CHWMC Human Resources Department (Salary Information)

**Table 28**  
**Potential Revenue**  
**Varicose Vein Center**  
**March 1996**

Name	% Managed Care	% Rate	% of Vein Patients	No. of Vein Patients	Amount Billed	Total Revenue
<b>Managed Care Plans</b>						
AME Health Plan	0.0%	90%	34.0%	57	\$350.00	\$0.00
Affordable Health Care Compare	3.8%	80%	34.0%	57	\$350.00	\$206.20
BC/BS NCA Capital Care	0.0%	80%	34.0%	57	\$350.00	\$0.00
Chartered Health Plan	13.5%	80%	34.0%	57	\$350.00	\$732.56
Chesapeake Health Plan	0.0%	70%	34.0%	57	\$350.00	\$0.00
Cigna Healthcare Mid-Atlantic	4.4%	90%	34.0%	57	\$350.00	\$268.61
Cigna Healthcare Mid-Atlantic	0.0%	N/A	34.0%	57	\$350.00	\$0.00
Community Care Network Inc (CCN)	0.5%	85%	34.0%	57	\$350.00	\$28.83
Group Health Plan	0.0%	90%	34.0%	57	\$350.00	\$0.00
MAMSI (M.D. IPA)/Optimum Choice	34.0%	100%	34.0%	57	\$350.00	\$2,306.22
Metropolitan Life Insurance Employees	6.9%	90%	34.0%	57	\$350.00	\$421.22
Mutiplan Inc of VA	0.4%	75%	34.0%	57	\$350.00	\$20.35
Mutual	0.0%	90%	34.0%	57	\$350.00	\$0.00
National Capital PPO	0.0%	80%	34.0%	57	\$350.00	\$0.00
National Capital Reciprocal Insurance	0.0%	75%	34.0%	57	\$350.00	\$0.00
New York Life/HealthPlus	23.6%	100%	34.0%	57	\$350.00	\$1,600.79
Principal HMO (Lincoln National)	1.6%	90%	34.0%	57	\$350.00	\$97.68
Principal Health Care	0.0%	80%	34.0%	57	\$350.00	\$0.00
Prudential HCP	0.0%	65%	34.0%	57	\$350.00	\$0.00
Prudential Network	0.0%	75%	34.0%	57	\$350.00	\$0.00
Prudential Plus of the Mid-Atlantic	0.0%	70%	34.0%	57	\$350.00	\$435.79
PPO Commercial	8.1%	79%	34.0%	57	\$350.00	\$195.35
The Travelers	3.2%	90%	34.0%	57	\$350.00	\$6,313.60
<b>Total Managed Care</b>	<b>100.0%</b>		<b>34.0%</b>	<b>57</b>	<b>\$350.00</b>	<b>\$5,985.00</b>
<b>BC/BS/Commercial Accounts</b>						
<b>Self Payment</b>		30.0%	57	\$350.00	\$4,987.50	
<b>Medicaid</b>		25.0%	57	\$350.00		
<b>Medicare</b>		3.0%	57	\$87.00	\$148.77	
<b>Uncompensated Care</b>		5.0%	57	\$87.00	\$247.95	
<b>Sclerotherapy Revenue</b>		3.0%	57	\$0.00	\$0.00	
		100.0%	57			
<b>Initial Appointment Revenue</b>			57	\$50.00	\$2,850.00	
<b>Total Outpatient Care Revenue</b>						\$20,532.82
<b>Imaging Revenue (1/3 of all Managed Care Patients)</b>						\$1,661.60
<b>Same Day Surgery (6% of Patients - DRG 119)</b>						\$7,484.10
<b>Total All Revenue</b>						<b>\$29,678.62</b>

**Table 29**  
**CHWMC Inpatient Revenues**  
**By Source FY 95**

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Source	Number of Inpatients	% of Total
Blue Cross/Blue Shield of D.C.	2,017	17.4%
BC/BC Virginia	55	0.5%
BC/BS Maryland	108	0.9%
Commercial	1,661	14.3%
<b>Total BC/BS/Commercial</b>	<b>3,841</b>	<b>33.1%</b>
Managed Care		
Affordable Healthcare	164	1.4%
HealthPlus	1,019	8.8%
MDIPA	1,467	12.6%
Capital Care	315	2.7%
Multiplan	17	0.1%
Metropolitan Life Insurance	299	2.6%
Chartered Health	583	5.0%
Travelers	138	1.2%
PPo Commercial	351	3.0%
CCN	22	0.2%
CIGNA	189	1.6%
Linclon National	69	0.6%
		0.0%
<b>Total Managed Care</b>	<b>4,633</b>	<b>39.9%</b>
Medicare	109	0.9%
DC Medicaid	1,428	12.3%
HHL Approved Medicaid	48	0.4%
Virginia Medicaid	8	0.1%
HHL PMP	137	1.2%
<b>Total Medicaid</b>	<b>1,621</b>	<b>14.0%</b>
Private Healthcare	525	4.5%
Self-Pay Payments	38	0.3%
CHW Contract	38	0.3%
Self Pay	207	1.8%
<b>Total Self-Pay</b>	<b>808</b>	<b>7.0%</b>
Uncompensated Care	113	1.0%
Eligibility Hold	2	0.0%
Residual	484	4.2%
<b>Total Other</b>	<b>486</b>	<b>4.2%</b>
<b>Total All Sources</b>	<b>11,611</b>	<b>100.0%</b>

Source: CHWMC Inpatient Administration Summary Report

**Table 30**  
**Statement of Revenues and Expenses**  
**Columbia Hospital for Women**  
**Proposed Vein Center**

73

	<b>FY 97</b>	<b>FY 98</b>	<b>FY 99</b>	<b>FY 00</b>	<b>FY 01</b>
<b>Operating Revenue</b>					
Outpatient Revenue*	210,493	251,699	292,990	312,847	319,306
Imaging Revenue*	17,146	21,697	22,240	22,796	23,366
Same Day Surgery Revenue - DRG 119*	79,962	96,899	99,322	101,805	104,314
<i>Total operating revenue</i>	<i>307,601</i>	<i>370,295</i>	<i>414,552</i>	<i>437,448</i>	<i>446,986</i>
<b>Operating Expenses</b>					
Salaries and Wages**	26,724	27,820	28,960	30,148	31,384
Physician Fees*	72,180	83,448	85,534	87,673	89,864
Fringe Benefits	4,812	4,932	5,056	5,182	5,312
Depreciation***	3,790	6,064	3,638	2,183	2,183
Medical Supply Expense**	14,220	17,308	18,018	18,757	19,526
Office Supply/Administrative Expense**	3,660	3,818	3,975	4,138	4,308
Advertisement	45,000	45,000	45,000	45,000	45,000
Utilities	540	540	540	540	540
Medical Equipment Rental	6,000	6,000	6,000	6,000	6,000
Telephone Expense	600	600	600	600	600
Interest Expense	2,000	2,000	2,000	2,000	2,000
<i>Total Operating Expense</i>	<i>179,526</i>	<i>197,531</i>	<i>199,321</i>	<i>202,220</i>	<i>206,716</i>
<b>Excess of Revenues Over Expenses</b>	<b>128,075</b>	<b>172,764</b>	<b>215,231</b>	<b>235,228</b>	<b>240,270</b>

**Notes:**

\*Assumes a 2.5% increase per year

\*\* Assumes an increase of 4.1 % per year based prior year increases in the Hospital Market Basket Index

\*\*\* Using Modified Accelerated Cost Recovery System (MACRS) 5 Year Depreciation

**Table 31**  
**Pro Forma Balance Sheet**  
**Columbia Hospital for Women**  
**Proposed Vein Center**

74

	<b>FY 97</b>	<b>FY 98</b>	<b>FY 99</b>	<b>FY 00</b>	<b>FY 01</b>
<b>Assets</b>					
Cash and Investments	87,526	255,349	466,325	696,567	931,340
Patient Accounts Receivable	64,403	69,778	72,054	73,625	75,721
Inventories	2,991	3,114	3,241	3,374	3,513
<i>Total Current Assets</i>	<i>154,919</i>	<i>328,240</i>	<i>541,621</i>	<i>773,565</i>	<i>1,010,574</i>
Gross Plant and Equipment	18,950	15,160	9,096	5,458	3,275
Accumulated Depreciation	3,790	6,064	3,638	2,183	2,183
Net Plant and Equipment	15,160	9,096	5,458	3,275	1,092
<b>Total Assets</b>	<b>170,079</b>	<b>337,336</b>	<b>547,079</b>	<b>776,840</b>	<b>1,011,666</b>
<b>Liabilities and Fund Balance</b>					
Accounts Payable	12,004	12,496	13,009	13,542	14,097
Current Portion of Equipment Debt	6,000	6,000	6,000	6,000	6,000
<i>Total Current Liabilities</i>	<i>18,004</i>	<i>18,496</i>	<i>19,009</i>	<i>19,542</i>	<i>20,097</i>
Long Term Equipment Debt	24,000	18,000	12,000	6,000	0
Fund Balance	128,075	300,839	516,070	751,299	991,569
<b>Total Liabilities and Funds</b>	<b>170,079</b>	<b>337,336</b>	<b>547,079</b>	<b>776,840</b>	<b>1,011,666</b>

**Table 32**  
**Pro Forma Statement of Cash Flows**  
**Columbia Hospital for Women Medical Center**  
**Proposed Vein Clinic**

75

	<b>FY 97</b>	<b>FY 98</b>	<b>FY 99</b>	<b>FY 00</b>	<b>FY 01</b>
<b>Cash from Operations</b>					
Excess of Revenues over Expenses	128,075	172,764	215,231	235,228	240,270
Less change in current assets	0	5,498	2,404	1,703	2,235
Plus change in current liabilities	18,004	148	154	161	167
Plus depreciation	3,790	6,064	3,638	2,183	10,220
Change in Long Term debt	0	0	0	0	0
<b>Change in Cash</b>	<b>149,869</b>	<b>173,479</b>	<b>216,618</b>	<b>235,869</b>	<b>248,422</b>
<i>Beginning Cash</i>	<i>0</i>	<i>149,869</i>	<i>323,348</i>	<i>539,966</i>	<i>775,835</i>
<b>Ending Cash</b>	<b>149,869</b>	<b>323,348</b>	<b>539,966</b>	<b>775,835</b>	<b>1,024,257</b>

**Table 33**  
**CHWMC Weighted Average Cost of Capital**  
**FY 95**

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<b>Debt</b>	<b>Amount of Loan/Equity (\$000)</b>	<b>Interest Rate</b>	<b>Total Interest (\$000)</b>
<b>Debts</b>			
Allstate Life, January 1, 1995	13,598	9.20%	1,251
Hospital Revenue Bonds	23,800	2.65%	631
NationsBank of D.C.	294	6.95%	20
First Union Bank	494	9.00%	44
<b>Total Debt</b>	<b>38,186</b>	<b>5.10%</b>	<b>1,947</b>
<b>Investments</b>			
	22,526	8.00%	1,802
<b>Total Debt and Investments</b>	<b>60,712</b>		<b>3,749</b>
<b>Weighted Average Cost of Capital</b>		<b>6.17%</b>	

Source: Arthur Anderson, LLP Consolidated Financial Statements, October 20, 1995

**Table 34**  
**Break-Even Analysis**  
**Varicose Vein Center**  
**In Thousands (\$000)**

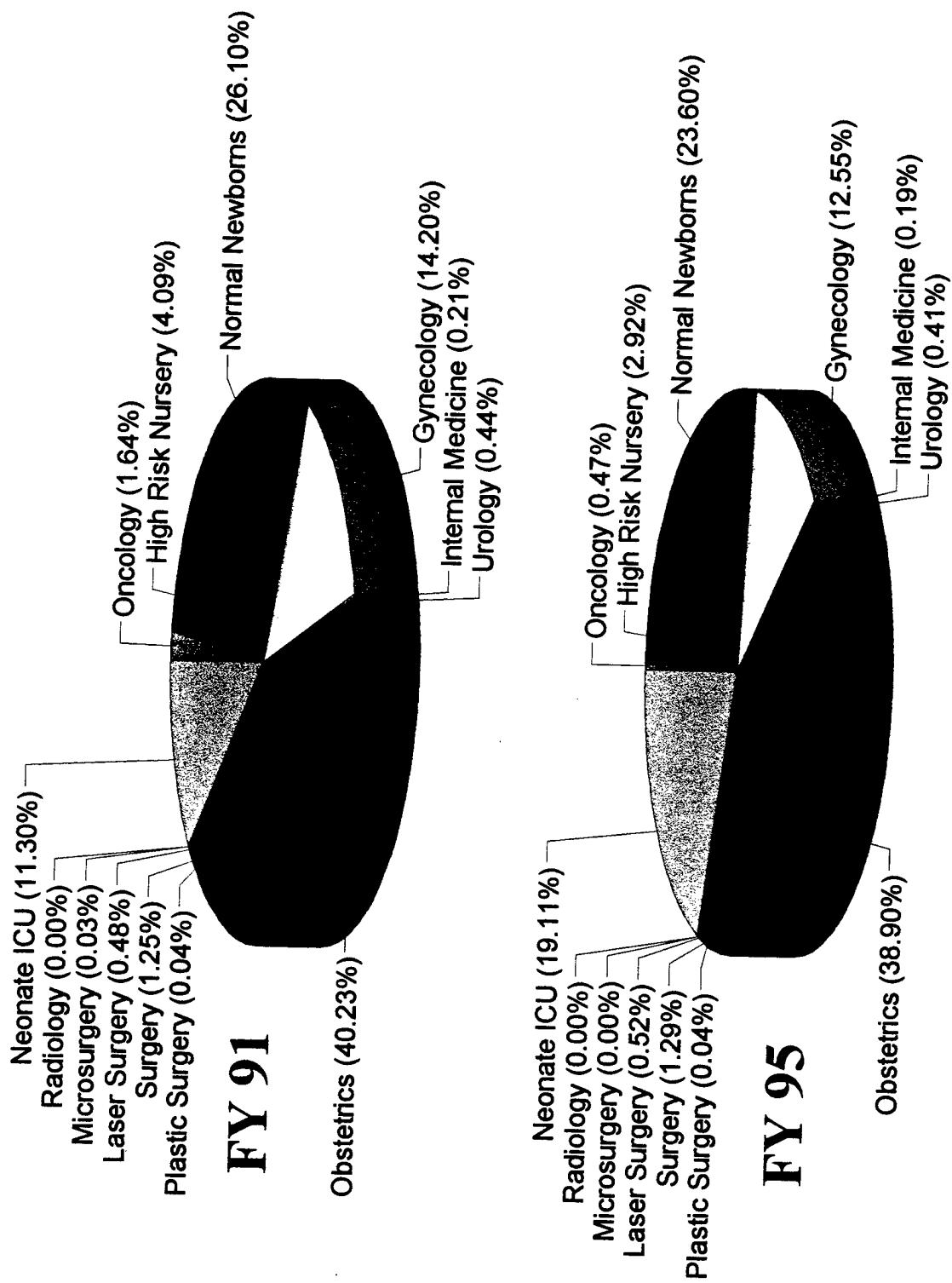
Quantity	Variable Cost	Total Variable Cost	Total Fixed Costs	Total Costs	Sales Price	Total Sales Price
0	\$0.1490	\$0.00	\$97.20	\$97.20	\$0.3894	\$0.00
50	\$0.1490	\$7.45	\$97.20	\$104.65	\$0.3894	\$19.47
100	\$0.1490	\$14.90	\$97.20	\$112.10	\$0.3894	\$38.94
150	\$0.1490	\$22.35	\$97.20	\$119.55	\$0.3894	\$58.41
200	\$0.1490	\$29.80	\$97.20	\$127.00	\$0.3894	\$77.87
250	\$0.1490	\$37.25	\$97.20	\$134.45	\$0.3894	\$97.34
300	\$0.1490	\$44.70	\$97.20	\$141.90	\$0.3894	\$116.81
350	\$0.1490	\$52.15	\$97.20	\$149.35	\$0.3894	\$136.28
400	\$0.1490	\$59.60	\$97.20	\$156.80	\$0.3894	\$155.75
450	\$0.1490	\$67.05	\$97.20	\$164.25	\$0.3894	\$175.22
500	\$0.1490	\$74.50	\$97.20	\$171.70	\$0.3894	\$194.69
550	\$0.1490	\$81.95	\$97.20	\$179.15	\$0.3894	\$214.15
600	\$0.1490	\$89.40	\$97.20	\$186.60	\$0.3894	\$233.62
650	\$0.1490	\$96.85	\$97.20	\$194.05	\$0.3894	\$253.09
700	\$0.1490	\$104.30	\$97.20	\$201.50	\$0.3894	\$272.56
750	\$0.1490	\$111.75	\$97.20	\$208.95	\$0.3894	\$292.03

**Table 35**  
**SWOT Analysis CHWMC Varicose Vein Clinic**

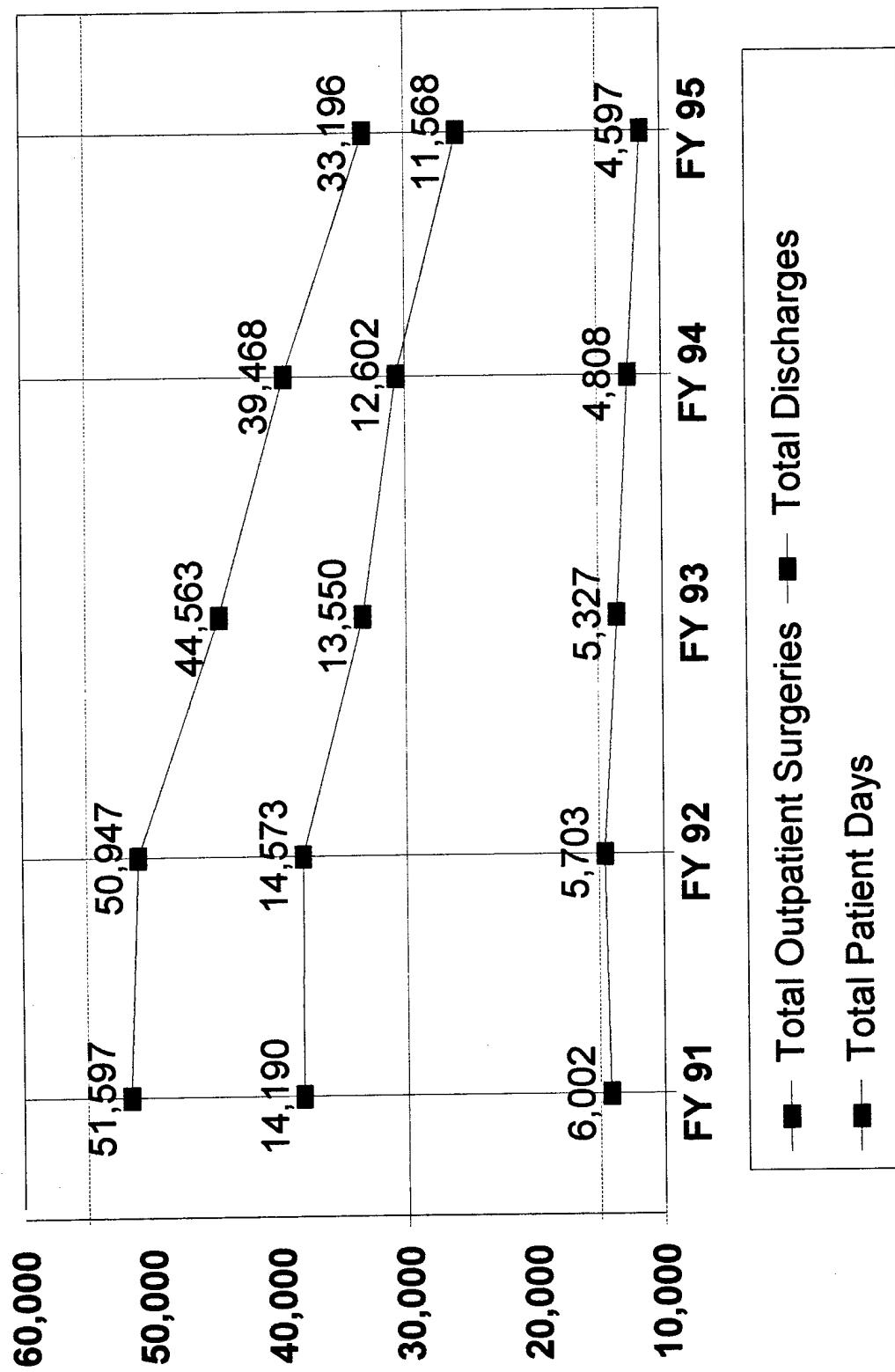
<b>Internal Strengths</b>	<b>Internal Weaknesses</b>	<b>External Opportunities</b>	<b>External Threats</b>
<ul style="list-style-type: none"> <li>-Room 316, POB unused Mondays and Wednesdays</li> <li>-Managers experienced in outpatient treatment</li> <li>-Billing Procedures/ Information System established</li> <li>-Good potential market of former patients</li> <li>-CHWMC has 24 managed care contracts which include outpatient services.</li> <li>-Could market service to CHWMC medical staff especially obstetricians, gynecologists and internal medicine physicians.</li> </ul>	<ul style="list-style-type: none"> <li>--Radiology Technician would need to be Trained to use IMEX 9000SV</li> <li>--Billing Clerk must be hired, other personnel May have to be hired also.</li> <li>--POB parking garage full on some afternoons</li> <li>--CHWMC must purchase IMEX 900SV.</li> </ul>	<ul style="list-style-type: none"> <li>-71,594 workers in Washington, D.C. may have varicose veins.</li> <li>--228,295 people reside in Washington, D.C. or surrounding suburbs</li> <li>--Potential to increase CHWMC vein surgeries (DRG 119) by 84 procedures. This is ten times the FY 95 workload for this procedure.</li> </ul>	<ul style="list-style-type: none"> <li>--Six competitors in Washington, D.C. commuting area.</li> <li>--One competitor only 5 blocks away on 19th Street.</li> <li>--Managed Care Companies could disallow sclerotherapy payment.</li> <li>--Managed care companies could negotiate lower rates from FY 98 - FY01.</li> </ul>

# Figure 1

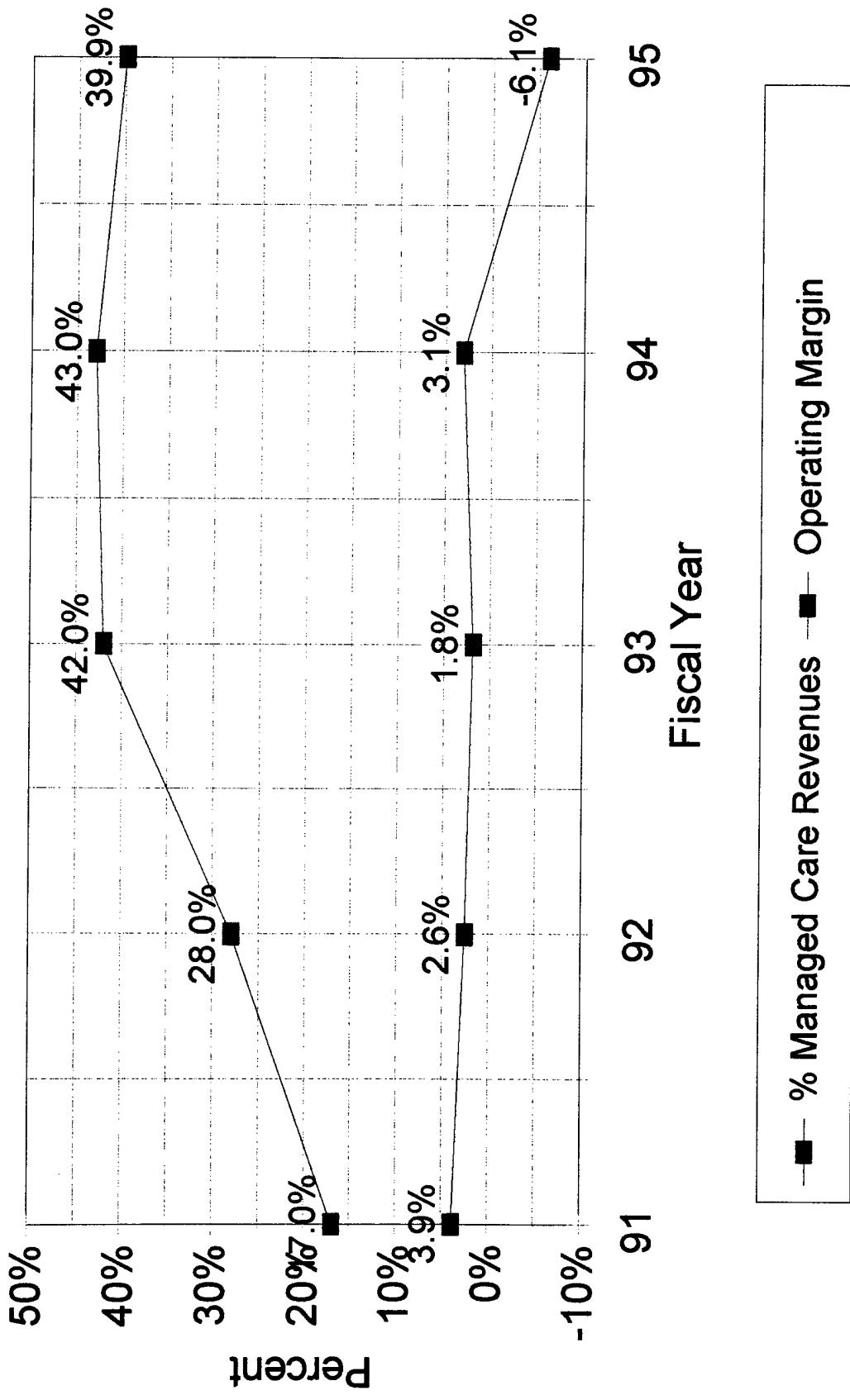
## CHWMC Medical Services



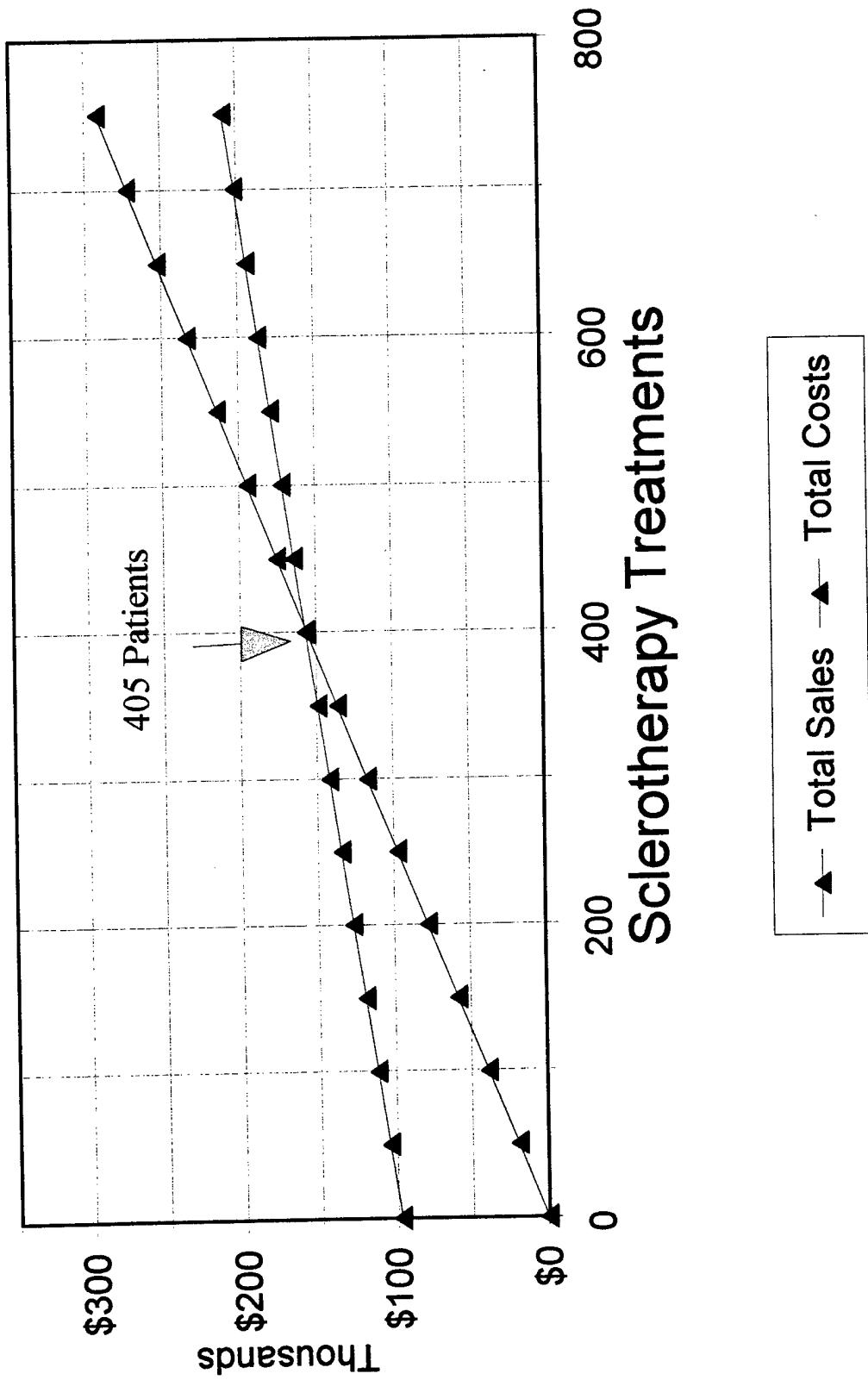
**Figure 2**  
**CHWMC Workload FY 91-95**



**Figure 3**  
**Managed Care vs. Operating Margin**



**Figure 4**  
**Break-Even Analysis CHWMC Vein Clinic**



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